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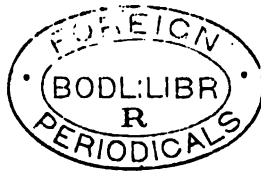


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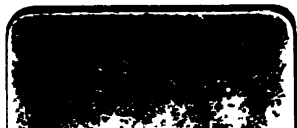
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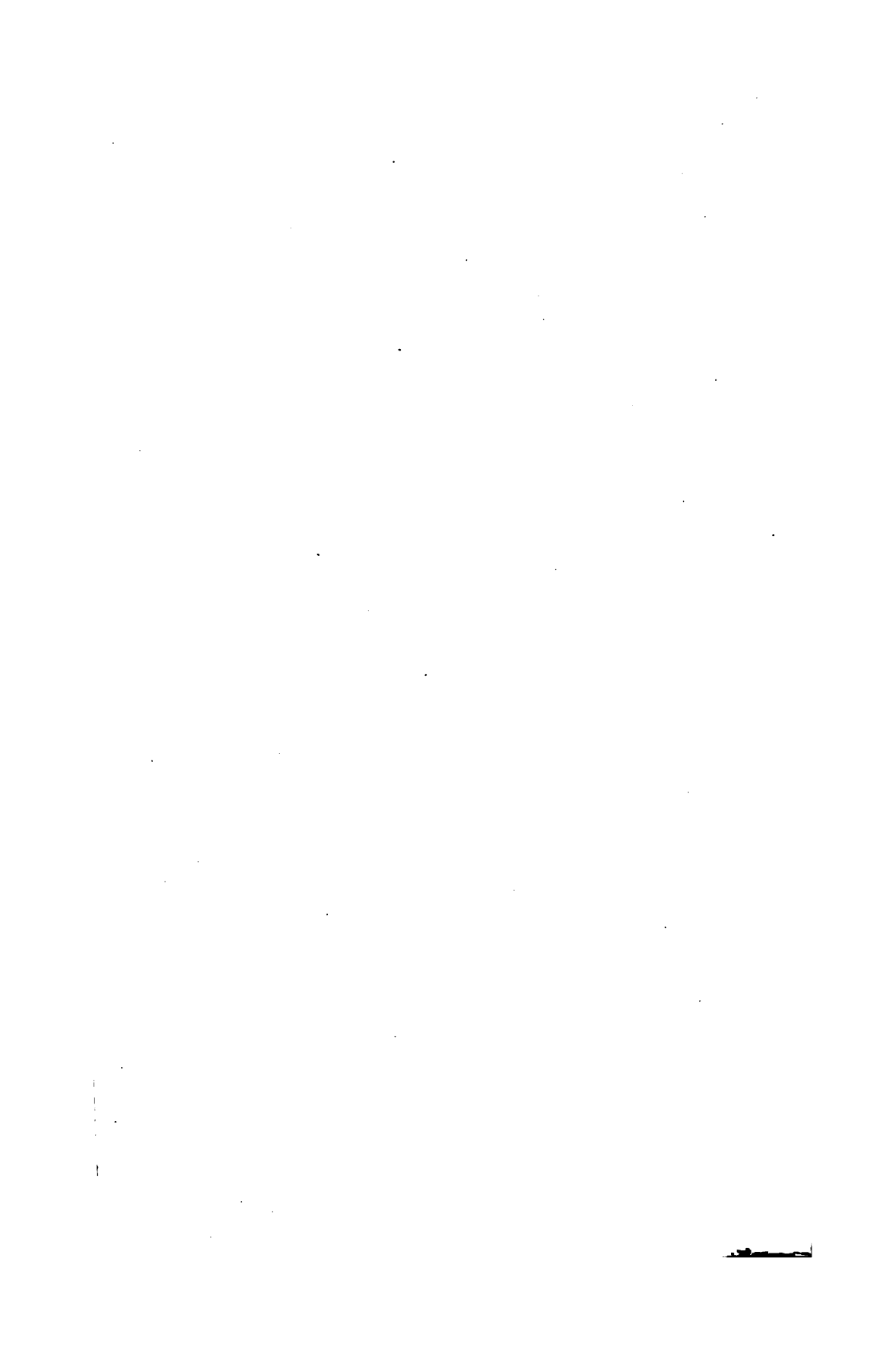


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4 *On the Intimate Nature of Infection and Contagion.*

means fermentation, and that it is derived from the Greek ζυμε, leaven—hence the term zymotic disease, which has been applied to certain diseases upon the supposition that the processes by which these diseases are developed bear close analogy to the process of fermentation, as observed in the fermentation of saccharine fluids or vinous fermentation. I wish to lay special stress upon the fact that it was the character of the vinous fermentation alone that suggested the application of the term zymotic to diseases, as, when it was first introduced into medicine, the vinous was the only fermentation studied, even if others were known; the term zymotic disease is now used as synonymous with infective disease. The use of the term zymotic is one which, I believe, has done more to retard the progress of the study of the diseases to which it is applied than most of the other numerous pathological misnomers with which we are troubled, and the use of the term has, I think, tended to impress upon the minds of even scientific observers the idea that observations upon fermentation of various kinds will determine the nature of the processes which take place in some of the infective diseases. I shall now discuss, as briefly as possible, the amount of light which the pathology of the infective diseases may derive from the study of fermentation. Probably the best definition of the term “fermentation” is that given by Professor Miller^a—namely, “Various transformations which organic compounds experience under the influence of a small quantity of organised matter, which is itself in a state of active alteration.” “This active substance, which is termed a ferment, neither imparts anything to nor receives anything from the substance which is undergoing fermentation.” In the vinous fermentation we find that the introduction of the yeast plant into a saccharine fluid determines the fermentation of such a fluid, and the conversion of the sugar contained therein into alcohol and carbonic acid. The yeast plant will not increase nor multiply in such a fluid, if it contain sugar only. The sugar will ferment but the plant will die. For the plant to continue its existence, a proper soil for it to grow upon must be provided, and this soil must contain nitrogenous elements to nourish the tissues of the yeast plant; but such growth and such pabulum is unnecessary for the production of fermentation alone. If the yeast plant be washed with distilled water, its power of fermentation is diminished—indeed, it may be temporarily suspended, although the life of the plant is not destroyed. It thus appears that the fermentation is caused by

^a Elements of Chemistry. Part III., 1857. P. 102.

a product of the growth of the plant—not by the plant itself. That an active principle, capable of itself producing powerful effects on other bodies, can be developed during the growth of such tiny organisms as the yeast plant, is just what might be expected when viewed by the light of the analogous results which take place during the growth of higher vegetable organisms. Thus the various poisons existing in vegetables are the products of the growth of the plants from which they are obtained. These agents, when separated from the plants, are not in any sense living, but are capable of producing as direful results upon human beings, the lower animals, or in some cases even upon plants, as any which have been attributed to disease germs. Some of these active principles may even be produced artificially.

I do not propose to discuss the various forms of fermentation, which seem now to be almost innumerable, but wish to call your attention to a process, strictly homologous to, if not identical with, fermentation, which has a most important bearing upon the question of the infective processes of disease.

There are certain little organisms whose name, "bacteria," is now in the mouth of everyone. They are as generally talked of as if those who discuss them were intimately acquainted with their appearance and nature. The name, in consequence of sensational lectures, has come to be commonly employed in the same sense as disease germ; so "bacteria and germs" are now looked upon as almost equivalent to "plague and pestilence." Now bacteria in themselves appear for the most part to be harmless little creatures; they or their germs swarm in millions in the air we breathe, the fluids we drink, and the food we eat. They can be collected from our mouths at any time, and when washed clean by distilled water have been injected into the blood without producing any evil result. It is quite clear that if bacteria were possessed of the terrible powers attributed to them they would soon have the world to themselves, having eaten up or decomposed all other organised beings. In spite, however, of the apparent harmlessness of these bacteria, it seems now to be almost certain that their existence is necessary, though their presence not essential, to the production of some of the most terrible forms of zymotic or infective diseases with which we have to deal. One disease (anthrax) is said to depend upon them (Pasteur).^a It is at this point that the study of

^a Proceedings of Academy of Medicine of Paris. July 3rd, 1877. Medical Record October, 1877. Pp. 423.

fermentation throws important light upon the nature of some forms of zymotic disease; it is because bacteria take part in a certain fermentation that they are important from one point of view. It is now agreed by all investigators that if septic material—that is, decomposing animal matters—be introduced into the blood of an animal, it produces poisonous effects. The result may be immediately fatal, or the effect may be slight and the animal recover, but of the effects of this poisoning I shall have more to say hereafter. A poisonous septic fluid may be prepared by infusing animal tissue (*e.g.*, muscle) in water, and when this becomes putrid, boiling it with alcohol, removing the alcohol by filtration and evaporation, and extracting it with water. This fluid contains septic poison, capable of destroying life, yet, whatever the poison be, it has not been destroyed by boiling alcohol. It has been proved by a well-devised and beautiful series of experiments that the poisonous fluid contains neither bacteria nor germs of any kind; the poisonous matter can, however, be filtered out by a porcelain filter. Now, having ascertained that the fluid containing the poison is free from germs, it is necessary to find out the source of the poisonous material. It arose from the putrid infusion of animal tissue, but how did it get there? It may be now considered as proved, by the observations of Dr. Burdon Sanderson and others,* that this virulent poison is the product of a fermentation in the infusion of muscle, the fermentation being promoted by the presence of bacteria, just as the vinous fermentation is promoted by the yeast plant; the ultimate result in the former case being the septic poison—in the latter, alcohol, or, as we may fairly call it, the alcoholic poison. I must here mention that the bacteria, which first appear in organic infusions or cultivating fluids, do not possess the power of producing a septic poison, but the succeeding generations produced by these bacteria do possess this power. The first generation of bodies do not present the same appearance as those which follow bacteria, having the appearance of little rods, produce as offspring, not rod-like bodies, but spheroidal bodies, called micrococci, which have a tendency to collect into masses (*glœa*) in which the bodies appear to cohere by means of a gelatinous substance. So much then for the relation of fermentative processes to the production of disease, and it amounts simply to this—that certain fermentations generate poisons, which in their turn may produce diseased conditions.

* Reports of the Medical Officer of the Privy Council and Local Government Board. New Series, Nos. VI. and VIII.; and *British Medical Journal*, 1875, 1877, and 1878.

SPONTANEOUS GENERATION.

The next question to be considered is the relation of what is termed "spontaneous generation" to the production or promotion of disease. Spontaneous generation has been and usually is taken to mean "the production of living things from materials not previously endowed with life; the term is objected to by Dr. Bastian^a under the belief that any operation performed either by the action of physical or vital *laws*, cannot be considered spontaneous. He has proposed to employ the term "archebiosis." While I quite agree with Dr. Bastian, yet I think it better to employ the more familiar term "spontaneous generation." In approaching the consideration of this subject, I know that I am not alone treading on the domains of the special pathologist and physiologist, but also venturing on the more dangerous and sacred ground of the theologist. Now with all deference to those who object to the consideration of the question of "spontaneous generation" on the ground that it has been declared in Holy Writ that "God *made* heaven and earth, and the sea and all things that are therein" (Acts, xiv. 15), I must say I do not consider the inquiry impious, because the inquiry is not whether the Almighty did or did not create a particular thing, but simply *how* he created it.

It has been said that those who assert the truth of spontaneous generation, and the belief in the evolution of higher from lower organisms, in obedience to certain natural laws, do by such assertions disparage the creative power of God, but I cannot see that they do so—on the contrary, I believe that such views imply rather a more perfect creative power in the Deity. To illustrate this:—A well-trained skilful mechanist can make a watch—it may be that some engineer may even devise a machine to make a watch—but it is utterly beyond the compass of a human mind to make a series of laws which, by their working, will make a watch; and similarly I say that that Almighty power which can create a series of laws which, by their own working, will produce living organisms from formerly non-vital material, is the greatest creative power which the finite mind can imagine. I do not come before you, however, as an advocate of spontaneous generation—on the contrary, taking an impartial view of all the evidence yet produced for or against the theory, I am distinctly of opinion that at present the supporters of this theory have got the worst of the discussion, and

^a Modes of Origin of the Lowest Organisms. 1871.

must produce further evidence and new facts to prove their case. I cannot possibly enter upon the discussion of the experiments which have been made with the view of proving the statements put forward on either side, but I shall refer to the more essential observations. The belief in spontaneous generation is very old. Aristotle (584, B.C.) believed in the spontaneous production of plants and animals. Harvey (1578) combated the views of the supporters of spontaneous generation, and of irregular physiological speculations generally, adopting as his maxim, "*omne vivum ab ovo*." Such a light seemed necessary at that time, for we find the following gravely written by Gerardes in his "*Herbal*," in 1597:—"There are found in the north parts of Scotland, and the islands adjacent, called Orchades, certain trees, whereon do grow certain shells of a white colour, tending to russet, wherein are contained little living creatures; which shells in time of maturity do open, and out of them grow those little living things which, falling into the water, do become fowls, which we call barnacles." And, further, "but what our eyes have seen and our hands have touched we shall declare:—There is a small island in Lancashire called the Pile of Foulders, wherein are found the broken pieces of old and bruised ships, some whereof have been cast thither by shipwreck, and also the trunks and bodies, with the branches of old and rotten trees cast up there likewise, whereon is found a certain spume or froth that in time breedeth into certain shells, in shape like those of a mussel, but sharper pointed, and of a whitish colour; wherein is contained a thing in form like a lace of silk finely woven as it were together, of a whitish colour, one end whereof is fastened into the inside of the shell, even as the fish of oysters and mussels are; the other end is made fast unto the belly of a rude mass or lump, which in time cometh to the shape and form of a bird; when it is perfectly formed the shell gapeth open, and the first thing that appeareth is the foresaid lace or string; next come the legs of the bird hanging out, and as it groweth greater it openeth the shell by degrees, till at length it is all come forth, and hangeth only by the bill. In short space it cometh to full maturity, and falleth into the sea where it gathereth feathers, and groweth to a fowl bigger than a mallard and lesser than a goose." Here we have spontaneous generation and Darwinian evolution all demonstrated in a most concise and off-hand manner. It was upon such statements as the above that the proof of spontaneous generation rested until very recent times, when the exact experiments of physicists

have been applied to, with the view of solving the question. It was affirmed that because the germs (using the term as equivalent to eggs, seeds, or spores) of the lowest organisms were not visible, that such germs did not exist; that as certain organisms are produced without such germs, and were not directly produced by organisms similar to themselves, therefore these organisms were spontaneously generated. Such a statement appeared very plausible before the invention of the microscope. That instrument, however, soon enabled us to discover that life abounded plentifully where previously it was supposed not to exist. With each improvement of the microscope more minute organisms were still discovered, and all microscopists are now agreed that there is still much outside the ken of the most perfect instrument yet invented—therefore seeing the germs is not essential to a belief in their existence. More searching and different tests had consequently to be devised, and I shall now endeavour to sketch the lines of observation which have led up to the present state of our knowledge upon this point.

Everyone is familiar with the fact that a beam of sunlight, falling into a comparatively darkened room, has its course marked by a cloud of floating moats. The individual particles which constitute this cloud have been investigated by Professor Tyndall, the Rev. W. H. Dallinger, and others. The rough method of examining the track of a sunbeam in a room has, of course, to be abandoned, and a method devised by which particular portions of air can be tested by bright light. Professor Tyndall has provided such an arrangement in the form of a glass chamber, through which he can pass, at will, a beam of electric light. If such a beam be permitted to fall through the air of an ordinary room, the beam is marked by a luminous track, caused by the illumination of the numerous floating particles by the beam. If these particles be in any way removed, the track of the beam ceases to be luminous. The particles can be destroyed, even in the atmosphere of an ordinary room, by the simple expedient of burning them with the flame of a spirit lamp, or a red-hot poker, when the portions of the beam exposed to the heat cease to be luminous. If ordinary air, drawn from any room, be enclosed in a glass chamber, the electric beam presents luminosity. If, however, the air be filtered through cotton wool before admission to the chamber, the electric beam cannot be tracked through it. If the chamber, filled with air containing the particles I have referred to, be allowed to remain at

perfect rest for some hours, it will be found that the air, when examined by the electric beam, has become as completely purified from dust as if it had been filtered before admission to the chamber. The dust, however, is not *gone*, but has only subsided to the bottom of the chamber. Dallinger has found that the rapidity of the settlement of the particles is in proportion to their weight. Fluids may be tested in the same manner for floating particles, and they will subside to the bottom of the fluid. What bearing have such experiments upon the question of spontaneous generation? ^a It is affirmed, and, I think I may say, proved, that the cloud in the air and in the fluid, demonstrated by the electric beam, contained not only inorganic particles and organic dead materials (such as pieces of clothing, hair, cuticle, dead insects, &c.), but also the germs, if not the developed forms, of low, but living organisms; and the proof consists in this, that when any air or fluid, capable of rendering the electric beam luminous, is brought into contact with any organic fluid or an artificially prepared cultivating fluid (which we may call a nutrient fluid), there will be produced in such fluid well-recognised organic forms. On the contrary, if the air or fluid be not capable of rendering the beam luminous (the particles having been removed by filtration), such air or fluid, when brought into contact with a nutrient fluid, will not develop any living organisms, as it is what is technically termed "sterile." This is the assertion of those who disbelieve in spontaneous generation, and all their assertions have been substantiated by experiments (Pasteur, Tyndall, Dallinger, &c.). In opposition to the above view, the believers in spontaneous generation affirm that certain materials, each and all of which have been so treated as to render the presence of germs therein perfectly impossible, will (when mingled) produce living organisms. The chief investigator and supporter of this doctrine is Dr. Bastian,^b whose well-known abilities as a physiologist and pathologist entitle his opinions and the results of his experiments to the highest consideration. Dr. Bastian's experiments consist in the taking of certain fluids, exposing them to a boiling temperature, hermetically sealing them in glass tubes, and then showing that, without any contact with the contaminating influence of the atmosphere, living beings can be developed therein, if the materials necessary for their nourishment exist therein. Time does not

^a For a very good account of this subject, see paper by Professor Tyndall, in *Nineteenth Century*, for January, 1878.

^b *Loc. cit.*, and *Beginnings of Life*, 1872, &c.

permit me to detail the steps of Dr. Bastian's experiments. The main feature in all the arguments for Dr. Bastian's observations is the assumption that a temperature of 212° will destroy life, if such existed in the fluid experimented upon. Dr. Bastian's conclusion is, "that specks of living matter may be born in suitable fluids, just as specks of crystalline matter may arise in other fluids." There does not appear to me to be any reason why this may not be correct, but I do not consider that Dr. Bastian has sufficiently proved it. The most recent experiments of Tyndall and Pasteur, Dr. Bastian's great opponents (and also of Dallinger), have proved that Dr. Bastian's assumption of the destruction of life at the temperature employed by him for that purpose is incorrect. In fact Tyndall and Pasteur have pretty well disposed of all the arguments in favour of spontaneous generation founded on the belief of certain temperatures destroying life. It is admitted that bacteria and many other low forms of organic life will be destroyed by high temperatures, but these are the complete organisms—not their *germs*. Pasteur proves that the germs are more resisting than the fully-grown organisms. This is not a surprising result, though one requiring great perseverance and trouble to prove. We know that the ova and even the partially developed embryos of the higher animals live under circumstances totally incompatible with the existence of their parents, or the beings into which these "germs" or embryos are ultimately to grow. Supposing all I have said to be correct and the conclusions true, what is the present state of knowledge with regard to spontaneous generation? Simply this—that, up to the present, spontaneous generation has not been proved. It has been proved that life may exist under the most adverse circumstances, and under conditions which were supposed to preclude the existence of living organisms. At the same time the possibility of spontaneous generation has not been disproved, although the probabilities are against its existence. Now, what bearing has this upon the origin of zymotic diseases? This, that if diseases necessarily depend upon germs, then, if we destroy the germs or their parents before they enter our bodies, we prevent disease—if we kill them after they enter, we stop or retard disease. If they are spontaneously generated they may possibly arise within the body, and precaution outside the body is useless. In any case, if it is admitted that germs are essential, their destruction will either prevent or cure disease.

It is now my duty to consider the question of "septic infection," or "septicæmia," as it is usually termed. The word "septicæmia"

is a bad epithet for the condition which arises from septic infection, because it implies putridity of the blood, in the sense of putridity outside the body; and thus a word wrongly applied has led to more argument about the word than about the condition which it is supposed to describe. The word does not convey to pathologists the idea of putridity of the blood, but of blood poisoned by a certain substance derived from a putrid material. In my remarks on fermentation I pointed out that the fermentation of certain organic fluids gave rise, as a result, to a poison called septic poison; we have now to consider the means by which this poison may be introduced into the blood, and the results which may follow its introduction. It has been shown that where bacteria exist this poison is liable to be produced, therefore if a suitable soil for the maintenance of the life of the bacteria and their progeny is maintained in any portion of the body where entrance to the blood stream can be obtained, the system is in danger of the septic poison. Now such soils for the growth of bacteria exist in wounds, some forms of ulcers, anthraxes, and the uterus of a recently delivered woman; the presence of bacteria in such stations is a mere matter of observation, and does not depend on opinion. It may, however, be affirmed that if the septic poison be produced by the action of bacteria apart from the infected body, that that poison is also capable of producing septicæmia. Certain accidents which happened to myself seem to illustrate this point. In the autumn of the year 1860, when resident pupil at Steevens' Hospital, and acting as dresser to Mr. Cusack, I accidentally cut myself with an ordinary knife at breakfast; after breakfast I proceeded to the wards (having placed a piece of ordinary plaster firmly over the wound) and went round with the medical staff. At about eleven o'clock I commenced dressing Mr. Cusack's patients, of whom there were a considerable number to attend to, having among them a recent amputation, a case of extravasation of urine with extensive sloughing, and a bad compound fracture. I had concluded my work about one o'clock, and went to my home in Molesworth-street, distant about two miles, walking without fatigue; dined at five, but felt disinclined to eat, and about six o'clock proceeded back to the hospital. Before I arrived there I felt exceedingly ill, and scarcely able to walk. Being too ill to work I went to bed; did not sleep; felt feverish and shivery all night. In a few hours felt my arm painful, and when daylight came I found red streaks passing from the site of the wound of the previous morning up to the axilla,

where the glands became swollen and tender; the wound itself was not painful. The symptoms subsided in a few days, and in a week I was well. I had received a comparatively small but direct dose of septic poison. I have on several occasions since suffered from *post mortem* wounds, and once from a wound caused by a careless assistant who was helping to dress a case of cut-throat. In none of these cases, however, did I feel the effect for several days, whereas in the former instance I suffered immediately. Viewing these phenomena by the light of our present knowledge, I am led to the belief that in the first instance I was affected by the septic poison which had been already produced by the bacteria and their progeny in the open sores of the patients. In the latter cases it was only bacteria which had entered my wounds; and had they been destroyed before developing their poison, I should have escaped; as it was, they spent the few days elaborating their venom. When the septic poison is introduced into the blood of animals the effects are—rigors, debility, gastro-intestinal irritation, vomiting, and purging (the discharges often being of a bloody character), and the temperature rises to two or three degrees above the normal. If the dose be not sufficiently large the symptoms subside, and the animal recovers. If the animal die the *post mortem* appearances are—extravasations of blood found on the internal surfaces of the cavities of the heart, especially the left ventricle under the lining membrane, also upon the serous surface of the pleura and pericardium; the spleen is enlarged, and the mucous membrane of the stomach and small intestine intensely congested, and the epithelium detached; all the other abdominal viscera also congested—in fact, all the conditions present indicate capillary congestion and stasis of the blood. Not only do these conditions present themselves, but a careful microscopical and physical examination of the blood shows that it itself has become materially altered. It is not putrid in the ordinary sense of the word, but nevertheless some of its essential constituents are decomposed. Thus the blood of an animal dead of septic poison is of a darker colour, and on minute examination it is found that many of the red corpuscles have disappeared, been broken up and disintegrated, some have even been completely removed from the body with the blood-stained discharges from the bowels, and where the blood is allowed to settle it is found that the supernatant fluid remaining after the subsidence of such corpuscles as are intact is stained by the colouring matter of the disintegrated corpuscles. The conditions

which arise from septic infection in man, differ in many particulars from those produced experimentally on animals, but are nevertheless of the same nature, and produce similar results. The following definition of septicæmia, used by Dr. Sanderson in his recent lectures on the infective processes of disease, may be accepted as complete and concise:—"Septicæmia is a constitutional disorder of limited duration, produced by the entrance into the blood stream of a certain quantity of septic material."^a Dr. Sanderson further remarks in the same connexion—"It must therefore be looked upon not so much as a disease as a complication—differing from pyæmia not only in the fact that it has no necessary connexion with any local process, either primary or secondary, but also in the important particular that it has no development." "Pyæmia is a malignant process which goes on to its fatal end." It may be considered proved that the conditions which follow the introduction of the septic poison—namely, debility, local congestion, and fever, depend upon the disintegration of the blood corpuscles. This proof rests upon the fact that if healthy blood, drawn from an animal, be so treated as to break up the corpuscles, such blood introduced into the circulation of the same animal will produce symptoms exactly similar to those following the introduction of the septic poison. It has been ascertained that the corpuscles contain an element which is the cause of the coagulation of the blood, and in order that this element may act it must be liberated by the breaking up of the corpuscles—hence the dangerous effects by the re-introduction, into the arterial system, of blood containing broken corpuscles. The stasis in the capillaries is caused by minute coagula, and this condition will also arise in consequence of the introduction of the septic poison. The two conditions are very similar, but not identical, for the septic poison seems to possess other properties besides disintegrating blood corpuscles. The points which I particularly wish to emphasise are:—1st. That the septic poison may be produced *outside*, and not even in contact with the body which it affects. 2nd. That it may be produced within the same body, provided a suitable soil for the growth of bacteria and their progeny exist therein. 3rd. That the septic poison is incapable of self-multiplication. Bacteria or their germs may enter the system by the lacteals, by the lungs, or through wounds. Healthy blood never contains bacteria or their germs, but it is proved that healthy organs do contain bacteria, therefore the

^a British Medical Journal. 1877 and 1878.

bacteria and their germs are capable of being destroyed by the vital processes; indeed if it were not so life would be impossible. If, however, septic germs be introduced into the circulation of an animal suffering from inflammation produced by an injury, such as the operation of *bistournage*, the germs will lodge in the inflamed part and produce diffuse inflammation, which quickly extends. In a similar manner germs from the intestine may make their way to a suitable soil in an inflamed peritoneum, and produce similar and fatal results. These poisoned soils become thus centres of true septic poison. We can here see how an inflamed or irritated peritoneum may become the means of diffusing fatal infection.

ART. II.—*On Amputation in Spreading Traumatic Gangrene.* By
EDW. WOLFENDEN COLLINS, M.D., F.R.C.S.I.; Surgeon to
Jervis-street Hospital, &c., &c.

THE propriety of immediate amputation in traumatic gangrene, when rapidly spreading without any line of demarcation, is still a subject on which civil surgeons are far from being agreed. The expectant treatment formerly pursued in these cases, before the writings and practice of Larrey demonstrated the advantage of early operative measures in military surgery, has still its advocates. I, therefore, submit the following series of cases, which have occurred comparatively recently in Jervis-street Hospital, under my own care and that of my colleagues, with the intent that their consideration may contribute, in some degree, towards the solution of the vexed question—how far amputation may be resorted to with success in civil practice in the treatment of this truly formidable disease.

CASE I.—*Laceration of Arm by Machinery—Gangrene and Secondary Hæmorrhage—Amputation near Shoulder-joint—Recovery.*

John Doyle, aged fourteen years, was admitted under the care of Mr. Banon, on December 2, 1857, having sustained a severe lacerated and contused wound above the elbow, which extended round the limb. While engaged in a paper mill, near Dublin, attending to the felt as it passed between the rollers, he had unconsciously laid his hand on this substance when the machinery was revolving with great rapidity, so that the limb had been forcibly dragged between the rollers up to the elbow. The soft parts in this region were, therefore, much more bruised than in the forearm near the wrist, owing to the pressure of the rollers increasing with the bulk of the forearm. The mill was immediately stopped, and the

arm extricated from the grasp of the rollers. The boy was then taken to the nearest surgeon at Tallaght, and was subsequently sent in to Jervis-street Hospital. It was found that the injury was confined to the soft parts, and that the bones of the arm and forearm were unbroken.

Next morning the parts presented a very unfavourable appearance. The lips of the wound looked swollen and unhealthy; and the skin, extending downwards over the joint, showed signs of commencing gangrene. Large bullæ, containing the usual discoloured fluid, had formed in the neighbourhood of the joint and down the forearm, which was œdematous and swollen. The temperature of the parts was much reduced, and the boy complained of intense pain. In the course of a few hours, under the influence of opium in full doses, the pain subsided, and the boy got some sleep. Considerable hæmorrhage, however, took place from the part of the wound immediately above the olecranon process. This was restrained by the application of a tourniquet over the brachial artery, and, when it recurred some hours subsequently, by the introduction gently into the wound of strips of lint, steeped in a saturated solution of gallic acid.

By the following day, the third after the accident, the gangrene had greatly extended over the forearm, the back of which was in a state of sphacelus. The boy still complained of intense pain, and the constitutional disturbance was very great. Owing to the rapidity of the destruction of the parts from the period of the accident, the occurrence of hæmorrhage, and the alarming nature of the constitutional symptoms, the idea of saving the limb was now abandoned. Amputation of the arm was decided on, and forthwith performed by Mr. Banon. Although the limb was removed very high up, close under the shoulder, it was found that the soft parts in the line of the incision had not altogether escaped injury. Small coagula of blood were observed, and only one artery, the brachial, required to be tied—evidences that the parts were much contused.

The stump suppurated freely. Ultimately, the boy made a satisfactory, though tedious, recovery, after a stay in hospital of five months.

CASE II.—Gunshot Injury of Forearm—Gangrene—Amputation at Shoulder-joint—Death from rapid recurrence of Gangrene in Stump.

James Waters, a strong muscular blacksmith, aged thirty-six years, was admitted under the care of Mr. Meldon, on September 15, 1867. Four days previously he had received a gunshot wound in the forearm, just below the inner condyle of the humerus. The shot had not lodged, but had carried away the soft parts, leaving the bones of the forearm bare, but unbroken.

On the second day after the accident gangrene set in. The man at this time resolutely refused his assent to amputation. The gangrene

continued to advance rapidly, so that, at the period of his admission into Jervis-street Hospital, on the evening of the second day following the advent of gangrene, it had spread along the hand, forearm, and arm, to within four inches of the shoulder-joint.

On the morning after his admission Mr. Meldon amputated the limb at the shoulder-joint by double flaps. The inner flap was a good deal discoloured; the outer, though apparently healthy, was cut small, as the parts in the vicinity were œdematous. The man slept well after the operation, was free from pain, and seemed in good spirits.

Thirty-five hours after the operation it was found that the temperature of the outer flap had fallen several degrees. Bullæ soon formed on it and its surface put on the characters of gangrene, while the inner flap continued healthy. By the next morning the gangrene had extended to the neck and anterior part of the chest. It continued to spread rapidly. He gradually sank, and died on the following afternoon, seventy-four hours after the operation.

The unsuccessful issue in this case can hardly be a matter of surprise. Shortly after the advent of gangrene, when amputation could have been undertaken with reasonable prospect of success, taking into account the man's age and constitution, it was declined. At a later period, when gangrene had been spreading with extreme rapidity for three days, and had involved the whole limb almost up to the shoulder-joint, amputation had to be performed as a *dernier ressort* under most unfavourable circumstances, a certain amount of infiltration of the flaps having evidently taken place.

It would appear from the history of similar cases that even a considerable amount of infiltration of the tissues at the site of the amputation has not, as its certain issue, recurrence of gangrene in the stump. In one of the successful cases recorded by Mr. W. H. Porter (*Dub. Jour. of Med. Sci.*, 1834), where amputation was performed very high up above the knee, so rapidly had the disease spread that the incision was made through cellular tissue loaded with a reddish serum. In a man whose arm Mr. Erichsen removed at the shoulder-joint, the infiltration had extended as high as the scapula, yet he made an excellent recovery. Still more remarkable is this case:—

On December 5, 1855, a young labourer on the railway, of intemperate habits, crushed by a waggon, had sustained a compound fracture of the arm, at the junction of its middle and lower third, with a compound and comminuted fracture of both bones of the forearm. Rapidly-spreading gangrene ensued. When seen at the Granard Workhouse by Dr. S. Nicholls,

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on the fifth day after the injury, the hand, forearm, and arm, as far as the junction of its middle and upper third, were in a state of complete gangrene. Vesication had extended to the axilla and centre of the deltoid. Tumefaction had reached the shoulder, neck, and chest, to such a degree that the subclavian artery could not be felt. The countenance wore a sunken and anxious expression. The pulse was small, quick, and irregular. There was no appearance of anything like a line of demarcation. Dr. Nicholls at once removed the arm by amputation, stimulants being freely administered. The patient subsequently progressed towards recovery most satisfactorily, without a single unfavourable symptom.—(*Dub. Hosp. Gaz.*, Feb. 1, 1866.)

What, therefore, in exceptional cases, may be the amount of infiltration of the tissues, through which amputation may safely be performed without recurrence of gangrene in the stump, it would appear very difficult to determine. Such a procedure, at best, is most hazardous, and only to be adopted when the disease has spread so high that amputation cannot be performed through, at least, apparently uninfiltreated tissues, and, if possible, with the barrier of a joint between the amputation and the disease. That such should be the rule is clearly indicated by the fact that the gangrenous process in these cases spreads more extensively in the areolar tissue than in the skin, so as to invade the limb in reality to a higher point than is externally apparent.

The recurrence of the morbid condition in the stump is in accordance with the view commonly held that this recurrence is a chief, if not the chief, source of danger and of death after amputation in these cases, particularly in the lower extremity. In Mr. Erichsen's experience, out of twelve cases, this happened in seven instances. We must not, however, too hastily adopt this conclusion. Mr. Porter regards his own cases as valuable, not only in showing that amputation is not so fatal as has been generally supposed, but in demonstrating by *post mortem* examination that, where it has failed, it has not been from the cause to which such failure has been usually attributed—namely, the seizure of the stump with mortification—but owing to circumstances that might have occurred after amputation performed for the removal of any other disease. It may be objected that, as in two of his cases death occurred twenty-eight and thirty-six hours respectively after the operation, sufficient reaction had not taken place, and sufficient time had not elapsed for the development of the morbid process. In the case I have mentioned, the first indications of recurrent gangrene in the stump were not observed till

thirty-five hours after the operation. The cause of its recurrence can, I think, be found in the very rapid extension of the gangrene throughout the entire limb, the severe constitutional disturbance arising from septic intoxication, and the partial infiltration of the tissues at the site where amputation had to be performed.

CASE III.—Severe Injury of Foot and Leg—Gangrene—Amputation of Thigh—Recovery.

Michael Dunn, aged forty-three, a labourer of robust constitution, was admitted into Jervis-street Hospital under the care of Mr. Meldon on the evening of November 26, 1867.

Three days previously a heavy piece of stone had fallen on and crushed his foot, causing a severe contusion. In its fall the stone had also struck his leg, lacerating almost the entire shin. The foot swelled enormously. On the second day after the accident gangrene set in, and it had overspread more than half of his foot at the time of his admission. Hot charcoal poultices were kept constantly applied, and were frequently renewed, during the succeeding night. By the morning the gangrenous infiltration had extended above the ankle. No approach towards a line of demarcation was visible.

Owing to the rapid spread of the gangrenous process since the preceding day, Mr. Meldon decided to remove the limb. The severe injury of the leg rendered it hazardous to operate below the knee, through tissues whose vitality was probably already too diminished to admit of repair. Mr. Meldon accordingly amputated the thigh, by the circular method, immediately above the knee.

The man made a rapid recovery.

CASE IV.—Severe Injury of Arm and Forearm—Gangrene—Amputation of Arm near Shoulder-joint—Recovery.

John Hartford, a quay porter, of immense muscular development, aged thirty-eight, was admitted into Jervis-street Hospital under the care of Mr. Meldon on January 14, 1873. While he was in the act of landing a large cask from a steamer belonging to the City of Dublin Steam Packet Company, it had slipped, crushing his arm and forearm with great violence.

The arm had sustained a comminuted fracture immediately above the elbow-joint, with rupture of the brachial artery. In the forearm both the main arteries had been ruptured, and the soft parts had been reduced to a condition of pulp. Both the arm and forearm were enormously swollen from extravasated blood, and no pulse could be detected at the wrist. Immediate amputation was recommended, but declined by the patient.

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Violent traumatic delirium ensued; and, ere forty-eight hours had elapsed after the injury, mortification, which a few hours previously had commenced in the fingers, had rapidly engaged the hand and forearm. The man no longer withheld his consent to operative measures. The limb was accordingly amputated by the circular method, immediately below the shoulder-joint, by Mr. Meldon.

The man made an excellent recovery.

CASE V.—Severe Injury of Foot—Partial Excision—Gangrene—Amputation of Thigh—Recovery.

John MacDonald aged fifty-five, an engine driver in the employ of the City of Dublin Steam Packet Company, broken down in constitution owing to habits of intemperance, was admitted into Jervis-street Hospital under my care, on the evening of March 8, 1878. His right foot had been caught and crushed between a plank and the combing of a hatchway. A severe lacerated and contused wound had thus been inflicted on the inner side of the foot. The rent, which readily admitted the fingers, extended from the proximal end of the first metatarsal bone backwards nearly to the ankle, while in depth it passed deeply under the tarsus into the sole, exposing the vessels, tendons, and muscles. The proximal extremities of the two inner metatarsal bones were broken, and dislocated outwards from the two inner cuneiform bones, which projected from the wound. The under-surface of the calcaneum was also fractured.

After due deliberation it was determined to try to save the foot. The inner cuneiform bone, and the broken ends of the metatarsal bones, were therefore removed, in order to bring the parts into proper apposition. Free arterial hæmorrhage was arrested by passing an armed aneurism needle on the point of the finger within the wound around the main plantar artery. Any further bleeding was controlled by lightly plugging the interstices of the wound with strips of lint steeped in turpentine.

In a few days the plugs were removed without recurrence of the bleeding. The wound, however, soon assumed a very unhealthy look, and the discharges became extremely foetid, notwithstanding the free use of antiseptics. Gangrene appeared in patches, and spread slowly along the ankle and heel.

By the sixth day after the injury the entire heel—both behind and at either side for some distance—had become gangrenous; and the dorsum of the foot was becoming implicated. The gangrene, moreover, had assumed a rapidly spreading character. Since the previous day discolouration and œdema had extended up the leg, and were attended with increased prostration and constitutional disturbance. In the evening, the gangrenous infiltration having spread upwards almost to the knee, I amputated the limb above the knee by the circular method, making the

section of the thigh a little above the junction of its middle and lower thirds.

Feeble reaction ensued, without any primary union. The wound slowly granulated from the bottom, casting off large sloughs. The sloughing process continued to extend upwards along the intermuscular planes of cellular tissue, at the outer and anterior portions of the stump, for some time. Long, tenacious, ropy masses of disorganised tissue were discharged and withdrawn daily, their separation being favoured by stimulating injections of turpentine. Long sinuses resulted, slow in healing, and requiring careful counter-openings and drainage. A low form of dry pleurisy set in eleven days after the amputation. It developed into pleuro-pneumonia, and slowly yielded to change of position, along with the free administration of turpentine and stimulants. Ultimately the man was able to leave the hospital, two and a half months after the accident, with an excellent well-covered stump.

The slow recuperative process, attended with much sloughing, which ensued after amputation in this instance, and in the first case I have mentioned, is what may be expected, and what takes place frequently in similar cases. Mr. Porter's observations on this point are of importance from the practical issues involved in their consideration. "Very large flaps both of integument and muscle," he insists, "should be left—larger than even in cases where the operation has been performed on the field, or immediately after the receipt of the injury. It is needless in these cases to look for union by the first intention, which, as far as I know, never takes place. On the contrary, there are usually abscesses and sinuses formed in the stump, discharging from time to time masses of ragged, sloughy, cellular tissue, with profuse suppuration, and general wasting of the remnants of the muscles; so that, on being eventually healed, the stump is much smaller in size than the corresponding part of the other limb. During the progress of the case, too, it will be necessary to support the patient's strength with more care and attention than is requisite in cases of amputation from any other cause."

Oil of turpentine, undiluted, used as an injection daily, proved particularly useful in stimulating the walls of the sloughing cavities in the stump, and thus favouring the detachment of the long, ropy masses of dead cellular structures. Mr. Hachenberg, U. S., has testified (*Med. Press and Circ.*, Aug., 1864) to the value of its frequent local application in hospital gangrene—a sloughing process not altogether dissimilar in its type.

The recovery of this man is not a little remarkable, if we consider his age, the nature of the malady, and his constitution impaired by intemperate habits. Both the local and constitutional causes, on which true spreading traumatic gangrene depends, were here combined—on the one hand, a severe contused and lacerated injury, implicating the joints and bones of the foot, directly killing some of the tissues exposed to the operation of the violence, and so diminishing the vitality of others that the inflammation necessary for repair terminated in gangrene; on the other hand, a condition of the constitution peculiarly predisposed to the super-vention of a low and diffuse form of inflammation. A further index of his constitutional condition was afforded in the presence of a sinus in the axilla, resulting from chronic glandular inflammation, which had remained unhealed during eight years, and still continued to discharge. The gangrene had extended rapidly far above the seat of the original injury. Notwithstanding these unfavourable conditions amputation was rewarded with success. The case, therefore, is encouraging to those who look to operative measures as affording the best chance of recovery, even where the constitutional element appears to predominate, or to be a main factor in the spread of the gangrenous process.

The practice adopted in the cases I have detailed, I am aware, is at variance with opinions recently given expression to. Mr. Savory (*St. Barth. Hosp. Rep.*, 1872, p. 24), largely influenced by the almost uniform mortality after operations for traumatic gangrene in London hospitals, owing, as he believes, to the previous intemperate habits of the subjects of this affection, thus sums up his arguments:—"I venture to say that the rule should be that we ought not to operate at all; but exceptions to this as to other rules occur, and then the patient's life hangs on the decision of the surgeon." Mr. Holmes (*Surgery*, p. 46) is not less positive when he remarks that, "if the attempt to save the limb has been made, and gangrene sets in, in a severe and rapidly-spreading form, it appears to be of little use to amputate—at least I have not seen any successful cases." As an exposition of success attending practice opposed to views thus expressed, the cases which I have detailed are not without interest.

It will be asked—what is the natural course of these cases if operative interference be not adopted, or be declined? There is no doubt that, in some instances, even after the disease has spread

extensively, a line of demarcation forms, and nature amputates the limb in such fashion as occurred in the following case:—

On December 18, 1877, a young labourer on the Long Island Railroad was run over by two platform cars. When admitted into Bellevue Hospital, N. Y., three days after the injury, it was found that both limbs had suffered severely. The right thigh, just above the knee, had sustained a deep lacerated wound, ten inches long, which was in a gangrenous condition. The left thigh was broken about three inches above the knee, the upper fragment penetrating the joint. The whole leg was cold, pulseless, swollen, discoloured, and emphysematous. On the following day the gangrene was extending in both limbs. Amputation would not be permitted.

The limbs were now wrapped in cotton wadding, saturated with hot water (temp. 110° Fah.), and enclosed in oil-silk. The hot water was removed every half hour, day and night. No medicines were given. From the second or third day after the commencement of the hot water applications there was almost no apparent constitutional disturbance; and, by the thirteenth day, spontaneous separation of the left limb was nearly completed at the knee. The gangrenous slough had already separated from the opposite thigh.

From experience of this method of treatment in similar cases, Dr. F. H. Hamilton concludes that, while it will not always prove successful in arresting traumatic gangrene, and in securing a prompt separation of the dead parts, it is well deserving of trial when amputation cannot safely be practised.—(*Archiv. of Clin. Surg.*, Feb. 1, 1877.)

The real question, however, is not whether cases of spontaneous arrest of traumatic gangrene, which has assumed a rapidly spreading character, occur, but whether such are altogether exceptional. By those who adopt amputation as a rule in these cases, the question can only be answered indirectly, by pointing to the want of success attending the practice of those who adopt an opposite line of treatment, or in cases where amputation, though recommended, has been declined by the patient. It remains for them to demonstrate that the operation of amputation under such unfavourable circumstances is based upon correct principles, and can be undertaken with a reasonable amount of success. The latter can best be effected by the consideration of a series of unselected cases, such as I have furnished, from the records of an hospital devoted to the reception of accident-cases, in which the complication of traumatic gangrene is most likely to occur.

The gangrenous process once established as the direct result of

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severe local injury, or of the inflammation resulting therefrom, would appear, under certain circumstances, to have the power of propagating itself by a direct and continuous extension of the morbid process, probably along the blood and lymph vessels and the areolar planes, in a manner somewhat similar to that which occurs in rapidly-spreading cellulitis. In each of these affections constitutional treatment alone, as a rule, will not suffice. Free incisions appear to be as called for in the one, as the more severe measure of amputation in the other. If these local measures be neglected, or too long delayed, septic absorption, purulent or putrid in its nature, too frequently ensues, and seals the fate of the patient by systemic intoxication. The timely arrest of the spreading gangrenous infiltration—in fact, the formation of a line of demarcation by operation—is, therefore, not the only end aimed at, and attained, by amputating some distance above the part affected. Not less important is the marked influence which such a procedure must exercise in diminishing the great danger, which exists in such cases, of septicæmia or pyæmia, owing to putrid absorption.

That a previous unsoundness of constitution predisposes to this form of gangrene after injuries, renders its spread more rapid, favours septicæmia, and seriously militates against the success of operative measures, in themselves sufficiently formidable, does not admit of doubt. I cannot, however, go so far as to hold that in all cases "the disease is a truly constitutional affection, dependent more upon the state of the patient's blood at the time of the receipt of the injury, than upon the severity of the injury, or upon circumstances to which he has been exposed immediately after the receipt of it." In some of the cases I have mentioned men in the prime of life, notably healthy, were stricken with this malady after injuries of such a character as destroyed extensively the vitality of the tissues. In such cases I can understand that gangrene, once started, should spread, either owing to rapid infiltration of the healthy tissues with the decomposing fluids, or owing to absorption of these fluids rapidly inducing a general condition favourable to the spread of gangrenous processes which at first were purely local.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Diseases of Women. By LAWSON TAIT, F.R.C.S.E. London: Williams and Norgate. 1877. Pp. 310.

WE can thoroughly recommend this unpretending little volume to all who are interested in the diseases peculiar to women. It abounds in valuable hints as to diagnosis and treatment, which cannot but prove most useful to the general practitioner, while in it the gynaecologist will find the most recent theories as to the etiology and pathology of these affections, many of the views put forward being striking and original. Mr. Tait is already well known as an author by his Hastings Prize Essay (1873) on "The Pathology and Treatment of Diseases of the Ovaries," and considerably more than a third of the present volume is devoted to the same subject. This is the most original part of the book, and is evidently the result of a great deal of conscientious work, while the author's well-known surgical predilections here find full scope for their development.

The views held by the author about acute and chronic ovaritis differ greatly from those put forward by all previous writers. For while the symptoms of chronic ovaritis have, up to the present time, been looked on as obscure, and the diagnosis difficult, our author thinks this condition "may be accurately defined and readily diagnosed." This the symptoms of the affections which he gives hardly enable us to do; for, with the exception of enlargement and tenderness of the ovaries themselves, they are all more or less common to other uterine disorders, and, as far as our experience goes, very few possess the bi-manual skill necessary to determine this fact with any degree of certainty.

Mr. Tait is, we believe, the first English author who has drawn attention to the occurrence of acute ovaritis during the course of some of the exanthemata, especially small-pox. This fact, however, has for some years been recognised on the Continent, mainly through the investigations of Slavjansky, who has also anticipated Mr. Tait by giving a full account of *interstitial* ovaritis.

To Mr. Tait is also undoubtedly due the credit of having simplified very considerably the nomenclature of extra-uterine pregnancy. We do not think, however, that in the volume before us he has brought forward sufficient facts to prove the statement that "every case of extra-uterine pregnancy is tubal in its origin." Abdominal pregnancy he explains by rupture of the tube at an early period of pregnancy and escape of the fœtus into the abdomen, where it may go on developing till the full time. Ovarian pregnancy is got rid of more easily by simply denying its existence. "In not a single instance which I have seen, nor in any of which I have found record, has the pregnancy been anywhere but in the tube. *None of the cases of so-called ovarian pregnancy will stand the test of criticism.*" However, if we look into Dr. J. S. Parry's work on "Extra-uterine Pregnancy," which Mr. Tait himself says "is at once a display of scholarly criticism and surgical ability," we find that not only does he give ovarian pregnancy as one of the possible forms of extra-uterine gestation, but he says that the nature of a case reported as ovarian pregnancy by Dr. Kammerer "is beyond dispute," and Mr. Tait himself subsequently acknowledges that he has never seen the original account of a case of ovarian pregnancy reported by Dr. Willigk, and hence is "*not in a position to give an opinion on it.*" We think, therefore, that the above statement will require very considerable modification. In the same chapter the author gives a case of malignant fibroma of the ovaries, but as on cutting into the tumour no fluid exuded, and as under the microscope no cells of any kind could be found either in the fluid obtained by scraping or in a thin section, we do not quite understand on what grounds the case is entitled "malignant" fibroma of the ovary.

In one thing we think the author is rather behind the age—that is, in his somewhat lordly disdain for the antiseptic method of performing ovariectomy, of which he says—"When its advocates can perform fifty ovariectomies aided by its hindrances, and have only six deaths, then will be the time to listen to them."

As a text-book for students the book has this serious drawback, that no description is given of the various methods employed for ascertaining the exact condition of the pelvic organs, the reader being supposed throughout the book to be acquainted with the ordinary routine methods of diagnosing and treating uterine diseases, while the evidence given in support of some very positive assertions will hardly satisfy the experienced gynaecologist.

The style of the book is here and there marred by the constant repetition of the first person singular, and it is probably the same bad habit that makes the author in one or two places appear to claim an originality which more properly belongs to others. There is quite enough original work in the present volume to enable Mr. Tait to give former writers the credit that is their due, without any fear that he will thereby materially injure his own well-earned reputation.

Practical Gynæcology. By HEYWOOD SMITH, M.A., M.D., Oxon. London: J. & A. Churchill. 1877. Pp. 184.

It is a pity, we think, that at the present time, when gynæcology is manfully struggling to obtain a more general recognition of its great importance, a book should be published which undertakes, in about 180 small and widely-printed pages, to treat not only of what is ordinarily understood as the diseases of women, but also of the disorders of pregnancy, and of the diseases connected with, and consequent on, parturition. At the same time, we must do the author the justice to say that he has not strictly carried out the latter part of this programme. For while he mentions frequent abortion, mole pregnancy, inertia of the uterus, rigidity of the os, puerperal fever, and *post partum* hæmorrhage, he has entirely omitted such affections as excessive vomiting during pregnancy, deformities of the pelvis, puerperal convulsions, and puerperal mania. The faults of the book are, however, mostly due to excessive condensation, which renders the features of many diseases so distorted and indistinct as to make their recognition at the bed-side almost impossible. This objection does not apply to the first chapter "On the Means of Diagnosis," which is clearly and fully handled, and shows us that the author could write a very good book if untrammelled by the self-imposed condition of excessive brevity.

A Handbook of Therapeutics. By SYDNEY RINGER, M.D. Sixth Edition. London: H. K. Lewis. 1878. 8vo. Pp. 665.

ONLY a year and a half having elapsed between our notices of the fourth and fifth editions of this well-known work, we are again called upon, after a second interval of eighteen months, to chronicle the appearance of another—the sixth—edition. The original plan of the "Handbook" must be so familiar to our readers, and our

opinion of its merits have been so frequently and so lately expressed, that no further words are required in praise or dispraise of what has proved so successful a book. Several new chapters have been added to this edition, and other chapters considerably extended. In a subject like *materia medica*, in which new articles are being almost daily introduced, frequent editions of such a work as Dr. Ringer's are of great value. The requisite investigations into the physiological and therapeutical action of "new remedies" can be made in the intervals between their publication; and if the drug promises to be of any value, its properties and uses are laid before the profession with an authority in great measure proportionate to the author's reputation. Additional information can also be given in reference to old remedies, and thus the reader is put in possession of the most recent and important discoveries in therapeutics. In this connexion we may mention the new chapters in the sixth edition on Muscarin, Jaborandi, Ethyl- and Methyl-atropium, Grindelia, the Californian remedy for asthma,* and on Salicin and Salicylic Acid; and the important additions to the chapters on the remedial uses of water, and on Gelsemium and Hyoscyamus, &c. On the other hand, many articles, of which we might expect to find descriptions in the present edition, are omitted—for example, apomorphia, curara, picrotoxine, thymol, eucalyptus, &c.; and nothing is added to former chapters on certain subjects, our knowledge concerning which has certainly been augmented since the publication of the fifth edition. We are glad that Dr. Ringer has taken our advice in giving a table of contents with this edition, but we regret that the work is still characterised by very careless orthography, which is not at all creditable in so standard a volume.

The Students' Handbook of Practice of Medicine. By H. AUBREY HUSBAND, M.B. Second Edition. Pp. 366. Edinburgh: E. & S. Livingstone. 1878.

IN some respects this book will be a greater favourite than the well-known "*Manual of Forensic Medicine*" by the same author. There is nothing superfluous, and so far as the theory of the practice of medicine can be compressed within a compass of somewhat less than 400 pages, the treatise is an excellent one. We believe handbooks so condensed as this would be further im-

* Vide *Irish Hospital Gazette*. Vol. II. 1874. P. 336.

proved if the treatment of diseases were altogether omitted, and the pathology and diagnosis made the sole concern. Throughout the book are tables of symptoms, given to aid the diagnosis, so that a glance down the parallel columns will enable the student to see what differential characteristics a disease should present. The present publication is really a new work rather than a second edition, and it is thoroughly *en rapport* with advanced medical science.

The Antidotal Treatment of Disease. By JOHN PARKIN, M.D.; F.R.C.P., Edin. Part I. Pp. 307. London: Hardwicke & Bogue. 1878.

DR. PARKIN is a bold theorist, but so far his originality has not arrested so much attention as it was designed to challenge. The volcanic origin of epidemics, which a previous work sought to prove, has not commended itself to the serious consideration of the scientific, nor has the specific for gout, which another volume detailed, been as successful as patients or their consultants could have wished. The present work begins, like most of the "new system" books, with a history of medicine, and the writer shows an intimate acquaintance with a host of authorities, from Paulus Ægineta to Paracelsus. His studies in this direction have imparted a strong mediæval tinge to his own acquirements. His views may be briefly summarised as follows:—Fever, whether typhus, typhoid, puerperal, or yellow, as well as the exanthemata generally, are forms of malaria; and because he has found carbon, especially carbonic acid gas, useful in cases of ague, he believes it will, by virtue of its antiseptic properties, cut short the course of any of these diseases. We are bound to say he admits that he was not the first to use carbonic acid as a therapeutical agent in fever. He mentions Stokes' employment of yeast in certain cases of typhus as far back as 1816. Dr. Parkin instances several cases of ague which he has cured by the carbonic acid treatment. The plan he adopts is to give 30 grains of bicarbonate of soda and 20 of tartaric acid, in a state of effervescence, two hours before the usual time of the accession, repeating the dose every quarter of an hour until four or five doses have been taken. In small-pox, if given before the commencement of the attack, the case becomes "invariably mild and uncomplicated." If the pustular eruption had been fully formed the employment of the remedy did not

appear to exercise much influence on the suppurative process, but it "removed the fever, prevented the case from becoming confluent, and rendered the supervention of malignant symptoms impossible." Dr. Parkin complains that his medical friends have not allowed him to try his specific on as many patients of theirs as he could wish. If it will effect what he claims for it, we are surprised that he remonstrates so mildly against the withholding of such a boon to humanity.

The Irish Medical Directory for the year 1878. Dublin: Offices of *The Medical Press and Circular.* London: Baillière, Tindall, and Cox. 8vo. Pp. 591.

WE have again to express our hearty approval of the manner in which this publication is brought out. The present issue contains even more information than last year's Directory. It is, in the fullest sense, "a reference Record of the Medical Profession in Ireland."

The Elements of Therapeutics ; a Clinical Guide to the Action of Medicines. By DR. BINZ, Bonn. Translated from the Fifth German Edition, by DR. E. J. SPARKS. New York. 1878. Small 8vo. Pp. 347.

THIS small and compact work is of a different stamp from any other which has been issued of late upon the same subject. It is condensed to the furthest limits of conciseness, undoubtedly contains a great deal of valuable information, and is, we understand, a favourite text-book in Germany. While it is likely to be of considerable service to teachers, it does not strike us as exactly a suitable book for the junior student, and it is calculated to be useful rather as a reminder to one who knew something of the subject previously. Dr. Sparks has performed his task well, and has contributed in no small degree to the utility of the volume, by the short and judicious additions which he has inserted in the text.

PART III.

HALF-YEARLY REPORTS.

REPORT ON SURGERY.

By WILLIAM THOMSON, A.B., M.D., F.R.C.S.; Surgeon to the Richmond, Whitworth, and Hardwicke Hospitals; and Member of the Surgical Court of Examiners, Royal College of Surgeons.

I. COLLES'S FRACTURE.

THE injury with which the name of the great Dublin surgeon has been associated by general assent is one of the most frequent with which we have to deal, and is yet one which there are few opportunities for minutely examining. Mr. Colles himself had never seen the actual condition of the fragments in the fracture which he described, and, as a matter of fact, he believed that it occurred at a higher point than it does. Dr. Hector Cameron, of Glasgow (*Glas. Med. Journal*, March, 1878), has been so fortunate as twice to have the opportunity of examining a recent specimen of the fracture after death. In the first, the fracture, although transverse, passes obliquely from above downwards and forwards, so that while at the anterior aspect of the bone the line is not more than a quarter of an inch from the articular surface, on the posterior the distance is increased to about an inch. There is some comminution of the lower fragment, and the broken surface of the upper is extremely rough and denticulated. This very irregular and notched character of the fractured surface appears to be usual (Malgaigne), and is of interest in so far as it may cause difficulty in the reduction of the displacement. In this particular instance, although it cannot be said that there is any impaction, a toothed projection on the long fragment so locks the other fragment in its new position upwards and backwards, that it would be impossible to reduce it, except by great force. In the second specimen there is a transverse fracture about three-quarters of an inch above the articular surface of the bone. In front the break is hardly complete, the periosteum holding the fragments together, but allowing them to bend at an angle there, as upon a hinge, so that the lower fragment is, as usual,

tilted upwards and backwards, and has the direction of its articular surface so altered that it looks upwards, backwards, and outwards. On the posterior aspect not only is the fracture complete, but the dense outer covering of the upper fragment is driven firmly into the substance of the lower, splitting it like a wedge into three fragments, which, however, hold closely and securely together. The impaction is complete and irremediable. Although firm extension improves matters, it does not unlock this connexion between the two fragments on the back of the bone.

This observation may be read in connexion with the dictum of Gordon, who says—"Colles's fracture is not, nor can it be, an impacted fracture; its mechanism declares impaction to be a mere phantom of the imagination, resulting from the erroneous interpretation of pathological facts" (Treatise, p. 27). R. W. Smith, an authority of the highest character, also observes that "the theory which supposes the fracture to be attended with impaction of the upper into the lower fragment is fallacious."

Cameron further discusses the causes of the prominence of the lower end of the ulna, and while admitting that it is frequently due to dislocation depending upon rupture of the internal lateral ligament, he believes that fracture and complete separation of the styloid process is certainly common. In five cases which he had an opportunity of examining, the styloid apophysis was detached. When Colles's fracture becomes compound, it is by reason of the dislocated ulna forcing its way through the skin. As a strange complication, Cameron mentions a case in which the ring and middle fingers were strongly flexed. A small body was found lying under the skin in the middle line of the front part of the forearm, about an inch above the wrist. It pressed on the median nerve. An incision over it exposed the scaphoid bone which had been dislocated. It was removed, and recovery followed.

Frank H. Hamilton, of New York (*Phil. Med. Times*, March 30, 1878), mentions that Moore, of Rochester, has observed in two autopsies the tendon of the extensor carpi ulnaris dislodged from its groove. He thinks this a very rare condition.

II. EXTRA-ARTICULAR OSTEOTOMY FOR GENU-VALGUM.

The treatment of genu-valgum by osteotomy has occupied much attention, and Dr. Ogston, of Aberdeen, is among those who have helped to throw most light upon a very difficult branch of surgery. His method consists in making a small opening into the joint, passing

in a fine saw, and sawing off the internal condyle of the femur. So far this proceeding has been carried out successfully about thirty times, but it is open to obvious objections. Mr. Reeves, of the East London Hospital for Children, has just put another method in practice, and he submits that it is free from the risks to which Dr. Ogston's plan is liable. The two methods may be described respectively as intra-articular and extra-articular. His method, as described in the *British Medical Journal* for May 25, 1878, may be thus summarised:—A scalpel, antiseptically prepared, was passed in obliquely just above the inner tuberosity. The periosteum was divided. Then a chisel was passed in along the knife, and the internal condyle separated *as far as the cartilage only*. The chisel was then used to prize the condyle inwards until it was found to move moderately freely. The limb was straightened; a long splint interrupted at the knee, and with a cross piece at the foot, to keep it steady, was adjusted. As the condyle differs in shape and depth, it is, of course, necessary to be accurate in chiselling, and Mr. Reeves accordingly marked out with ink on the skin not only the contour of the condyle, but also the direction of the chisel-cut. The greatest depth of the condyle was marked on the chisel, allowance being made for the thickness of the cartilage and of the soft parts. The chisel was then driven home until the mark on it nearly reached the skin. The condyle having been first penetrated in its greatest depth, the chisel was partially withdrawn; its direction was altered, first forwards, then backwards—and by a few oblique touches, due allowance being made for the varying depths, the condyle was felt to be sufficiently loose when the instrument was withdrawn. It might be thought that the uncut cartilage, with perhaps some slight uncut bony ridges, would either interfere with the reduction of the deformity, or would only yield after being broken. The result does not confirm these objections. But even if the cartilage were to fracture, or even if the point were entered, the proceeding would not be so severe as if done with a saw. It is more correct to say, not that the internal condyle was separated, but that the greater part of it was *almost* separated—that is to say, that the chisel did not extend to the intercondylar groove, but only to its inner side. The aim of this is to preserve some part of the inner condyle which may grow, and thus obviate any possible future *genu extrosum* which may be the consequence of the increased growth of the external condyle. The advantages of the extra-articular method seem to be—greater rapidity of execution,

rendering it more strictly subcutaneous, much less damage to the bone, cartilage, and soft parts; no interference with the joint; and as the condyle is not completely separated, there is less likelihood of subsequent non-union and necrosis.

III. TREPHINING THE SKULL IN A CASE OF IDIOCY.

Dr. Fuller reports in the *Canada Medical Record* for April, 1878, a case in which he removed a portion of the skull for idiocy. The patient was two years old, born of healthy and intelligent parents. The birth was very difficult. The child cried incessantly the first day; had convulsions on the second, and these continued for some days. She always enjoyed good health, but the circulation was sluggish. The skull was small, the fontanelles were closed, and the whole felt like a little old skull. The face was expressionless; the eyes were divergent and turned upwards towards the left side; the pupils were dilated; the tongue habitually projected between the lips; the right arm was flexed and held tightly to the side; and the fingers were cramped over the thumb, which were bent into the thumb. When she was asleep, the arms and fingers relaxed, and could easily be straightened. She was never known to chew, and choked on the smallest particle of solid food getting into her throat. She was quite indifferent to persons, but she laughed heartily when pleased; would strike her mother when told to do so; and when asked to hide would turn her face to the right. These motions were automatic and limited, so that it was necessary to place the cheek in the line of motion of her hand.

The diagnosis was compression of the brain from early consolidation of the bones of the skull. This was based upon the spasmodic condition of certain muscles and stiffness in the general movements of the body, indicating an anæmic state of the nerve-centres of motion. During sleep, when the brain is naturally collapsed, giving room for an equal circulation to all the nerve-centres, the muscular system was equally relaxed. The sluggish circulation, the state of the pupils, &c., corroborated the view. The skull was perfectly symmetrical but small, and the spasm of the right arm pointed out the greatest compression to exist on the left hemisphere.

In order to relieve the pressure on the circulation, a circular portion of bone $1\frac{1}{4}$ inches in diameter was removed from the left parietal bone, just above and in front of the eminence. The dura mater bulged to such an extent that it was feared that it might slough from pressure of the inner margin of the opening in the

skull. The brain had a very strong pulsation. Threatening asphyxia brought the proceedings then to a close.

The immediate effects of the operation was that the child became warm over its whole body; its eyes assumed a more parallel direction and were more steady in their movements, and it began to stretch out and open its paralysed and stiff arm and hand. The tongue receded into its mouth, and on the fourth day it was observed to chew. On the ninth day her attention could be attracted by an object held before, and in a month she was so far improved that she knew and cried after her mother, and was able to distinguish individuals. In about five weeks another portion of bone was removed just behind the first. The parallelism of the eyes was now almost straight, but a spasm of the peronei muscles was not affected. In two months she had greatly improved, and the latest date she had shown some attempt to talk. She obeyed, to some extent, the directions of her parents, and gave other proofs of growing intelligence.

IV. CHOLECYSTOTOMY IN DROPSY OF THE GALL-BLADDER.

Dr. Marion Sims contributes a most interesting account of this operation in the person of a lady, aged forty-five, living in Paris (*Brit. Med. Journal*, June 8, 1878). She had been married twenty-two years, and had been exceptionally healthy. While in Switzerland last year she complained of pain in the right lumbar region, high up under the false ribs. In November she became suddenly jaundiced, but she only saw a physician for the first time in December. An unnatural swelling was discovered about the lower border of the liver. Early in January there were frequent discharges of blood from the bowels, but these were at last stopped. She suffered terribly from itching and burning of the skin, with lancinating pains through the joints. She would spend the night walking about, scratching and crying like a child. Every part of the body was the seat of itching—the scalp, and even in the inside of the eyelids. Hyperæsthesia was so great that she could not bear the weight of the bed-clothes. No remedy internal or external produced any effect. The swelling on the right side increased, and in March it extended four and a quarter inches below the umbilicus. It extended the same distance transversely. She was seen by the physicians of highest repute in Paris. On March 16th, the tumour extended five and a half inches below the umbilicus, and it had the same transverse diameter, measuring from the linea alba towards

the false ribs. It was oblong, rounded, and slightly movable laterally. To the touch it was sensitive and hard, or tense. The tension was so great as to mask the fluctuation. Sims detected fluctuation, and gave it as his opinion that they had to deal with a cyst connected with the liver, but whether hydatid or dropsy of the gall-bladder he could not say. In consultation it was agreed to aspirate the tumour, and thirty-two ounces of a dark brown fluid were evacuated. An analysis showed that there was no bile in it, and no hydatid hooks. There was a great improvement in the patient's condition. The pulse and temperature became normal; she slept, took nourishment, and lost the itching and vomiting for two days. But then all the symptoms returned. She slept little, and became rapidly exhausted. Ten days after the tapping (April 9) she had several attacks of syncope, and was very prostrate. On the 13th, the tumour had become almost as large as before, and Drs. Bremond and Sims, looking on the case as hopeless, agreed to cut down upon the tumour, freely open it, empty its contents, and if it proved to be the gall-bladder, to attach its incised border to the edges of the abdominal incision, and thus to make a fistulous opening that would insure against its refilling. They were encouraged to make a permanent fistulous opening, because, first, they saw such improvement in all her symptoms follow the temporary removal of the fluid by aspiration; second, it would be in imitation of the efforts of nature in all similar cases where recovery has taken place; and third, speedy death was inevitable if they did nothing. The operation was performed by Sims under carbolic spray. An incision three inches long, parallel with the *linea alba*, was made over the most prominent part of the tumour, about three inches to the right of the umbilicus. It was begun an inch above the level of the umbilicus, and extended two inches below it. When the peritoneum was opened several ounces (perhaps six or eight) of pinkish serum were discharged. A Dieulafoy's trocar of the largest size was thrust into the tumour, and twenty-four ounces of a dark brown fluid were withdrawn. As soon as the cyst was emptied, it was hooked up with a tenaculum, and pulled to the outer edge of the incision, where it was seized with forceps and drawn out for about two inches. It was found to be the gall-bladder. It was incised to the extent of about two inches, and was thoroughly cleaned out. It was eight inches deep. After some fluid had been removed, sixty gall-stones were taken out. As the gall-bladder was already drawn through the wound to a considerable extent, Sims resolved to

amputate it. This he admits was a mistake. The walls were greatly thickened, and bled freely. The edges were attached to the abdominal wound, and the dressings were applied. The immediate results of the operation were very satisfactory. The symptoms all improved for several days, but then she began to bleed from the gums. Ergot, iron, &c., were administered, but the oozing did not cease, and she died in six days after the operation. At the *post mortem* examination the wound was found to have united perfectly. There was not the slightest trace of peritonitis. A director passed freely into the gall-bladder through the fistulous opening, showing the continuity of the two. Sixteen gall-stones were found in the cavity, the under-surface of which was almost black, but its structure was so firm that it could not be scraped off with a knife. The intestines all had a bloodless pearly appearance, almost diaphanous.

M. Ranvier, Professor of Histology in the College of France, found in the fluid of the gall-bladder a large number of red blood corpuscles which had preserved their natural form and colour. Every one knows, since the researches of Kühne (*Zeitschrift für Wissenschaftlichen, Zoologie*, Vol. IX., p. 261), that the bile, and particularly the biliary salts, destroy the red corpuscles, which first become pale and then disappear suddenly without leaving a trace. The presence of red corpuscles here is a certain proof that, in the liquid which contained them, there was not an appreciable quantity of biliary salts, and consequently it was not itself colourless bile.

Sims believes this operation to be unique, and defends it, because it is in imitation of the process adopted by nature in all cases in which recovery takes place. All authors have advised against opening the gall-bladder until nature had prepared the way by effecting adhesions between it and the abdominal walls, or until this had been done artificially by caustic potash. But antisepticism renders the operation of cutting down to the dropsical gall-bladder and establishing a fistulous opening quite as safe as to leave it to the slower process of nature. In another case Sims says he would not remove any portion of the bladder. The great lesson the case teaches is this:—In dropsy of this sac, in hydatid tumours of the liver, in suspected abscess of the liver, and in gall-stones, we should not wait till the patient's strength is exhausted, or till the blood becomes bile-poisoned, producing hæmorrhages, but we should make an early exploratory incision, ascertain the true nature of the disease, and then carry out the surgical treatment that the

necessities of the case may demand. If this should be done under antiseptic precautions, many valuable lives would be saved that otherwise would be lost.

V. LITHOTRITY BY A SINGLE OPERATION.

Professor Bigelow discusses the feasibility of performing lithotritry by a single operation, in the *American Journal of Medical Science* for January, 1878. The greatest authorities upon this subject have uniformly advised against prolonged "sittings," Thompson assigning two minutes as the proper average duration of a sitting. Bigelow believes that it is better to protract the operation indefinitely, in point of time, if thus the whole stone can be removed without serious injury to the bladder. In any case which is as favourable to lithotritry as the average, in these days when stones are detected early, this can be effected; and, if the bladder be completely emptied of detritus, we have as little to apprehend from the fatigue of the organ, consequent upon such manipulation, as from the alternative of residual fragments and further operations. The duration of the sittings in a series of eight cases which he reports, varied from three quarters of an hour to three hours and three quarters. The bladder can be thus completely and at once evacuated in a majority of cases. The stone, after crushing, can be removed through the urethra by a tube contrived for the purpose.

Bigelow always etherises for lithotritry. It is well, by a preliminary injection, to ascertain carefully the capacity of the bladder by emptying it, and then refilling it slowly with warm water, previously measured, until the water is expelled through the loosely-held urethra, by the side of the tube. In the etherised patient, a short pipe or nozzle suffices for this purpose. The bladder should be kept distended while the lithotrite is being used, so as to prevent injury of the mucous membrane. The size of the evacuating tube usually employed is too small. Thompson uses one the size of a No. 14 catheter = 25 Charrière. Bigelow says this is fatal to efficiency. He uses sizes from 27 to 31 flière Charrière. The best tube is straight, or curved quite near the end; the receiving extremity should depress the bladder and thus invite the fragments, while its orifice remains unobstructed by the mucous membrane. The best orifice is at the side of the extremity, and is made by bending the tube at a sharp right angle, carefully rounding the elbow, and then cutting off the bent branch close to straight tube.

The tube is then practically straight, while its orifice, which is slightly oval, delivers a stream at an angle with it. The edge should be thickened and rounded, so as to slide smoothly through the urethra; any rim inside the orifice should be masked by a false floor, but the calibre should be nowhere contracted. If the side walls of this orifice be removed a little it gives an unguiform extremity to the tube, which is advantageous; and in introducing such a straight tube, this tip may be gently insinuated through the triangular ligament by rotation. If a couple of inches of the end of such a tube be bent, it may be inserted after introduction, and will bury itself in the floor of the bladder, which it depresses, while the orifice looks forward, and is unobstructed. This form is quite efficient.

It is only within two years that Bigelow has aimed at the evacuation of a considerable stone during one sitting, and although long experience will perhaps be necessary to determine precisely what cases are unfavourable to such an operation, there can now be no question that it is practicable to remove at once a far greater quantity of *débris* than has hitherto been considered possible. The future of lithotrixy lies in the direction of a fast-working lithotrite, which, while it effectually protects the bladder, is more powerful than the usual instrument, and better proportioned to effect a rapid comminution of the stone, and its immediate and complete evacuation by means of a large tube with an efficient orifice.

VI. ANTISEPTIC SURGERY.

The struggle over the principles and results of antiseptic surgery still continues, although it is obvious that the believers increase in number, and that it is at least getting some sort of trial at the hands of most surgeons. Mr. Messenger Bradley (*Brit. Med. Journal*, Feb. 23, 1878) is of those who, accepting the general truth that we can carry out antiseptic surgery with great advantage, deny the infallibility which is claimed for it by Lister, and think his method costly, cumbrous, and not absolutely certain. Bradley complains—and the same observation is made by Spence—that we are not furnished with statistics by Mr. Lister of the results of his practice, and that we must be content to compare the statistics of his followers with those of surgeons who dress on other plans. He publishes the results of fifty-five excisions and amputations. There were five deaths, but not one was attributable to putrefaction or to its septic consequences.

Mr. Bradley objects to the use of the "mysterious spray" and the patent character of the dressings, which, he thinks, act as a real hindrance to the comprehension and general adoption of the true principles of antiseptic surgery. It is probable that the spray, instead of keeping off bacteria, really drives them into the wound; creating currents and vortices in the air, it seemed likely that the skirts of these little whirlwinds would be caught, and any contained microzymes entangled and driven along the lines of spray. For, be it remembered, the spray is not a continuous sheet of vapour, but only a good thick douche, with plenty of room for thousands of bacteria to dance between each and every atom. In experiments with vibrating sand-plates, the light lycopodium is caught and held in the very centre of the sites of greatest vibration, while the heavier sand is driven through into the lines of rest. Similarly the bacteria may be trapped by the very means adopted to keep them at a distance.

Again, the water may be a fertile source of mischief. It is true the solution (No. 20) is a strong one, but he has reason to question Lister's dictum as to the fatal effect of this twenty solution upon bacteria. Over and over again he has seen bacteria moving as vigorously as before, after two hours immersion in this solution. Two pieces of muscle from the same limb were experimented upon. One piece was cut off under spray, placed on a board quite new, wiped with a sponge washed in No. 20 carbolic acid solution, and dressed strictly according to Lister's plan. The other piece was cut off in the common air, and dressed with lint saturated with glycerine and carbolic acid. After an interval of about a fortnight, the specimens were Nesslerised, and it was found that the one dressed with spray gave ammonia, and was, therefore, putrefactive, while the other gave no ammonia, and was sound.

The next objection is that the dressings tend to keep putrefactive matter confined, and that they are very expensive. As to Bradley's own plan there is nothing very original. He first cleanses the skin thoroughly with carbolic soap, so clearing away all clinging germs. The instruments are perfectly clean, and the wound is filled with No. 20 solution of carbolic acid, or some other germicide. The wound is then made as dry as possible, and is dressed with four or five folds of lint saturated with a mixture of glycerine and carbolic acid. Over all is placed a pledget of carbolised tow, or dry lint, or cotton wool. The wound is cleaned once or twice a day. He carefully avoids using water in any form, squeezing, not syringing,

the matter out, and wiping with dry, not with wet lint. In cases such as knee-joints, where syringing is necessary, he uses a solution of permanganate of potash. Do what we will putrefaction will occur from time to time; but Bradley claims that his plan is just as efficient as the more costly cumbersome plan of Lister.

Mr. Chiene has also discussed this subject before the Medico-Chirurgical Society of Edinburgh (*B. Med. Jour.*, Dec. 29, 1877). He advocates the use of a layer of sponges over the ordinary deep dressing of an antiseptic case, so as to absorb discharges. The sponges may be used over and over again after being soaked in carbolic acid. They rendered it unnecessary to shift the deep dressing, and thus got rid of the frequent use of the spray machine. Mr. Spence asks what is the use of a treatment where the slightest slip vitiates the result; so that, according to a recent statement, there are only a very few men who can be trusted to carry it out.

ERGOT IN ENTERIC FEVER.

In October last, M. Siredey first adopted the suggestions of M. Duboué (of Pau) in employing ergot in enteric fever. His first case was a very unfavourable one. The patient, a man of twenty years of age, had been ten or twelve days ill; his tongue was literally fissured, the gums covered with sordes, articulation difficult, and speech confused. There was delirium, subultus of the tendons, marked hyperæsthesia, stiffness of the neck and spine, and at certain moments a condition of opisthotonos. Thirty grains of ergot were ordered to be given in the course of the day. The effect was rapid. The more serious symptoms abated. The ergot was continued for three days longer, during which time the delirium and the nervous symptoms completely disappeared. The fever followed its usual course, but with lessened severity, and pneumonia delayed the convalescence a little. In six or seven other cases ergot has been tried. Two of them were taken at the initial period, although they presented all the symptoms characteristic of the disease, but the recovery was so rapid as to throw doubts on the correctness of the diagnosis. With three others the drug was administered only after all other lines of treatment had been exhausted; all recovered. The dose ranged from 23 to 46 grains a day for an average time of two weeks. In another instance a woman three and a-half months pregnant, took the ergot in 25-30 grain doses daily for a fortnight, and without miscarriage.—*J. de Méd. et Chir. Prat.*

S. W.

REPORT ON
MATERIA MEDICA AND THERAPEUTICS.*

By WALTER G. SMITH, M.D., Dublin; F.K.Q.C.P.I.; Assistant-Physician to the Adelaide Hospital.

ART. 4. Chloral, poisoning from.

,, 1. Iodoform.

,, 5. Renal Lesions, drugs in.

,, 2. Salicylic acid.

,, 3. Thymol.

1. *Iodoform*.—Although this drug has been known for a number of years, its really valuable qualities are not yet so widely recognised as they deserve to be. Several observers have recently drawn fresh attention to its useful properties in the following classes of cases:—

(a) Externally—*Venereal affections*.—Mr. Berkeley Hill (*Brit. Med. Journ.*, Jan. 26, 1878) affirms that, under treatment by iodoform, brushed lightly over the surface with a moistened camel-hair pencil, venereal sores, especially the local chancre, heal quickly, pain subsides at once, the sore is well in a week or ten days, and the chances of consecutive inoculation or bubo are greatly lessened. For three years this has been his almost invariable treatment of venereal sores, and, during the last few months, he has often substituted for the dry powder an ethereal solution (1 part of iodoform in 6 or 8 of ether). The sore is touched or dabbed with a pencil dipped in the ethereal solution, according to its size and depth, lightly or copiously. The ether quickly evaporates, leaving a thin pellicle of iodoform that as effectually stays the spread and produces healing of chancres as does the more copiously applied dry powder. Thus the surface is covered more exactly, and the disagreeable smell of the iodoform is too faint to attract attention. The sore is well washed with water and dried before the iodoform is applied, and the surface is lastly protected by a bit of dry lint. When the secretion is abundant, the dressing must be

* The author of this Report, desirous that no contribution to the subjects of *Materia Medica* and *Therapeutics* should remain unnoticed, will be glad to receive any publications which treat of them. If sent to the correspondents of the *Journal* they will be forwarded.

renewed twice daily, but in three or four days the amount of discharge becomes so scant that one dressing *per diem* suffices.

Mr. Wyndham Cottle confirms these statements, and believes that iodoform acts particularly well in cases where there is a disposition to slough; and Dr. Prosser James also finds iodoform most efficacious in specific ulceration of the soft palate, pharynx, tonsils, or nasal passages. Further, cases of scrofulous ulceration and other forms of indolent non-specific ulcers are rapidly improved by iodoform locally applied.

Chronic ulcers, which have remained open for years, and on the treatment of which much care and skill have been expended, often, in Mr. Cottle's experience, close in a few weeks under the influence of iodoform, while obstinate pain is relieved after a few hours.—(*Brit. Med. Journ.*, Feb. 9, 1878.)

In a most troublesome class of affections—viz., subacute and chronic catarrhal inflammations of the *naso-pharynx*, Mr. Lennox Browne commends iodoform as superior to all other topical agents, which too often only aggravate the disease. It may be applied in two ways—as an ethereal solution (1 part to 10 or 12 of common ether) with a brush, or a piece of sponge or cotton wool in a suitable holder; or, mixed with vaselin (5 or 8 grs. to ʒi.), and applied with a small brush far up each nostril. Mr. Browne took the suggestion to use this remedy from Dr. R. C. Brandeis, of Louisville, who was first led to employ it from observation of its good effects in catarrhal affections of a somewhat analogous nature in the vagina and uterus.

Dr. E. Woakes supports Mr. Browne, and states that in cases of rhinitis, ozæna, post-nasal catarrh, and hyperplastic deposits, whether simple or syphilitic, iodoform exercises quite a specific influence. He prefers to employ it in the form of "iodoformed wool," introduced on a probe to any desired part, and allowed to remain for a period varying from one to twenty-four hours. Each drachm of the finely-carded cotton contains a drachm of iodoform. In *gonorrhæal orchitis* a writer declares that iodoform relieves pain within one or two hours better than any other agent. It notably shortens the duration of the orchitis, hinders consecutive induration of the affected organ, and, unlike mercurial ointment, there is no danger to be apprehended from absorption. It is applied as an ointment containing 1 or 2 parts of iodoform to 30 parts of lard.—(*Revue de Thérap.*, Nov. 18, 1877.)

The odour of iodoform in ointment can, in some measure, be

disguised by the addition of essential oils—*e. g.*, oil of bitter almonds. As a powder it can be employed alone, or diluted with fullers' earth, magnesia, or tannin—the last-mentioned substance having the peculiar property of, in some degree, removing its powerful and penetrating odour.

(b) Internally, Mr. Berkeley Hill (*loc. cit.*) has likewise found iodoform of great benefit. It acts more rapidly than potassic or other iodides, and, judging from experience thus far, it is as readily borne as are those salts. He gives it in one-and-a-half grain doses as a pill with extract of gentian. Three pills are given each day, increasing gradually till eight or ten pills are taken in twenty-four hours.

He has used it with excellent effect in cases of obstinate syphilitic ulceration of the tongue, where the dorsum is covered with rugged thickened epithelium, which is constantly splitting into deep fissures, and thus causing continual severe pain to the patient. This affection is often quite insensible to mercury, alkaline iodides, or arsenic—the remedies usually beneficial. In three of these obstinate cases, where the patients had been treated at intervals for years with the remedies just mentioned with little lasting benefit, iodoform pills acted like a charm. Pain immediately lessened, in two or three days ceased wholly, and the fissures healed rapidly, while the tongue soon shrank to its natural size. In December last he had under his care in University College Hospital a patient with ulcerated and protruding gumma of the left testis, non-ulcerating gumma of the right testis, and ulcerating gummata of the skin over the upper end of the right tibia, with other syphilitic affections. Iodoform was administered in pills, and water-dressing applied to the ulcers. Rapid healing and subsidence of the swellings took place, notwithstanding that, when the dose of eight pills *per diem* had been reached and administered for three days, an outbreak of pyrexia, coryza, and iodic acne rendered it necessary to stop the drug completely for a short time. In three weeks the patient left the hospital almost healed, and continued his treatment as an out-patient. Again, a lady who has during the last two years consulted him occasionally for intensely agonising pain in the head caused by syphilitic pericranial and cranial disease, for which a customary dose was thirty grains of sodium iodide three times daily, was at once relieved of pain by the iodoform pill taken three times daily, though, on the third day, nausea became too urgent to allow the iodoform to be continued in that quantity; it was at first diminished till pain ceased, and then discontinued altogether.

2. *Salicylic Acid*—(a) *Transformation of*.—Dr. Byasson finds that when salicylic acid is ingested by man in the form of sodium salicylate it can be detected in the urine twenty-five minutes after administration. A dose of 3 grammes is eliminated within 36–40 hours. In its passage through the system, part of the salicylic is eliminated as such, while another portion is transformed into salicin optically active, into salicyluric acid, and probably into oxalic acid.

The urine first passed a few hours after ingestion of 2 or 3 grammes of sodium salicylate turns the plane of polarisation to the left. This deviation is due to the salicin produced. Sodium salicylate augments the proportion of uric acid and nitrogenised compounds in the urine. When salicin is taken it is eliminated unchanged, and with its optical properties preserved, within a few hours after ingestion.—(*Journ. des Connaiss. Méd.*, No. 22, 1877.)

(b) *Dangers of*.—M. Gubler reminds us that when salicylic acid is given two opposite effects of this drug upon the urinary secretion may be observed. If the kidney be healthy, the flow of urine is increased; but if it is diseased—*e. g.*, congested or inflamed, the secretion of urine is diminished. In the first case the drug acts in the manner of neutral salts; in the second it increases hyperæmia, and interferes with the action of the gland. In two cases of rheumatism M. Gubler has observed albuminuria to follow the use of this drug. The patients were treated with salicylate of sodium in moderate doses. At first there was oliguria, and then the urine became albuminous, and when the medicine was stopped a free flow of urine was re-established, and the albumen disappeared.—(*Revue de Thérap.*, No. 24, 1877, from *Journ. de Thérap.*)

Dr. Pye-Smith calls attention to the fact that in persons taking salicylic acid the urine reacts like saccharine urine with the ordinary copper test. In 16 out of 18 hospital cases under treatment by salicylic acid in the form of the sodium or ammonium salt, the copper was reduced. In other patients for whom he had prescribed salicin or salicylates for rheumatism, urticaria, or common colds, he has never failed to find more or less reaction with the copper test. The sp. gr. of the urine was usually not raised, and there was no polyuria or other symptom of diabetes. The reaction disappeared when the drug was discontinued. Dr. Pye-Smith hopes to pursue the inquiry further, which is one of considerable clinical interest, and is not yet prepared to say whether the effect be due to glycosuria or to some other cause.—(*Brit. Med. Journ.*, March 2, 1878.)

(c) *Poisoning by*.—The following case was the subject of discussion at the Medical Society of Posen:—In February, 1876, a peasant suffered an attack of acute rheumatism in the knee and instep of the left leg. In order to relieve pain his physician gave him a hypodermic injection of 1 cgm. (!) of strychnia, and then ordered him 6 doses of salicylic acid, 75 cgm. in each dose, to be taken every hour. Immediately after the first dose the patient fell into a profuse and increasing perspiration. His strength decreased so quickly that his wife hesitated to give him the fourth dose, but the patient insisted on taking it, and immediately afterwards he was seized with headache and vomiting, which lasted the whole night. Next morning he lost consciousness, and uttered heavy groans. This state of insensibility disappeared for a moment, and he turned round towards the doctor, crying out—"My head." All the means employed to restore him proved fruitless, and he succumbed forty hours after the administration of the first dose. No autopsy was made.

It is not possible, comments the *Centralblatt*, to attribute this death to cerebral rheumatism—all the symptoms were those of poisoning. Subsequently it was discovered that the salicylic acid employed was old, and had undergone chemical alteration, as was evident by its odour and taste.—(*Répertoire de Pharm.*, Oct. 10, 1877.)

3. *Thymol*.—The modern practical application of this interesting compound arose from an investigation conducted by Dr. Lewin, in 1875, although its first discovery and description by Kaspar Neumann dates back so far as 1719.

Dr. Radcliffe Crocker has lately recorded his experience of thymol as a stimulant application in skin diseases, especially in cases of psoriasis. In his early experiments he used an ointment containing 25 grs. to $\mathfrak{z}\text{i}$, to be rubbed into the seat of the eruption after the removal of the scales, night and morning, but it soon appeared that thymol was a powerful stimulant, and that in a concentrated form it was even caustic in its effects. In a case where the ointment had been carelessly dispensed, so that crystals were present, undissolved in the vaselin basis, minute holes in the skin were produced in those parts where the crystals had remained for some time. [A similar case has come within my own knowledge.—*Rep.*] In the majority of cases of psoriasis an ointment containing 10 grs. to $\mathfrak{z}\text{i}$. was sufficient to cure the case, and, if

necessary, the strength can be increased by 5 grs. to $\mathfrak{z}\text{i}$. until 30 grs. to $\mathfrak{z}\text{i}$. be reached. Many cases treated with thymol showed rapid improvement, and some very chronic cases, which had resisted other treatment, including tarry applications, improved, and were finally cured by it. When the diseased surface was of considerable extent, a lotion was usually prescribed instead of the ointment: (Thymol, 5 grs., rectified spirit, glycerin, $\text{āā } \mathfrak{z}\text{i}$, water, to $\mathfrak{z}\text{ss}$). Compared with tar, chrysophanic acid, or oil of cade, thymol possesses the advantages of being colourless, more cleanly, and not liable to discolour the hair and skin, while the odour is rather pleasant than otherwise.

In the *later* stages of eczema it is also extremely useful, as a weaker ointment of 3 to 5 grs. to $\mathfrak{z}\text{i}$, and its use should be restricted to cases in the dry stage, or where the amount of discharge is diminishing—*i.e.*, not until the active stage of the inflammation has subsided.

From his observations Dr. Crocker concludes that thymol is a valuable addition to the list of stimulant remedies for diseases of the skin, and probably also as a parasiticide for diseases of fungous origin. Lewin and Bucholz have shown that thymol is about eight times as powerful as carbolic acid as a destroyer of the lower forms of life.

Pharmacy of Thymol.—Mr. A. W. Gerrard (*Pharm. Journ.*, Feb 16, 1878) has made some useful experiments on this point.

Crystallised thymol (thymic acid) is freely soluble in alcohol, ether, chloroform, benzol, carbon bisulphide, fats and oils, and but sparingly in water and glycerin. The strongest permanent watery solution of thymol is 1 in 1,000. The fixed caustic alkalis are powerful solvents of thymol, and do not appear to enter into chemical combination with it. The strongest spirituous solution miscible with water in any proportion without turbidity is one of 4 grs. to the fluid ounce. One part of thymol is soluble in 120 parts of glycerin, and can be diluted with water to 600 parts, forming a clear solution. In preparing ointments with vaselin or lard as a basis, the thymol should first be dissolved in a few drops of rectified spirit. Whenever strong solutions are desired, the solvent action of potash or soda may be brought into requisition, and these alkaline solutions can be diluted with water in any proportion without separation.

Dr. Crocker, applying these results, has used the following formulæ:—

1. An ointment, 5–30 grs. to 1 ounce of vaselin.
2. A lotion, consisting of thymol, 5 grs.; rectified spirit and glycerin, āā ʒi. ; water, to ʒ8. The glycerin is added to correct the desiccating effect of the spirit alone.
3. A potash solution of thymol, 3 grs. and upwards in ʒ8 of water.

Internally.—Bälz (*Lond. Med. Rec.*, Feb. 15, 1878) has studied the action of thymol in healthy individuals, and on patients with various pyrexial affections. He concludes that thymol is incontestably an antipyretic, but is uncertain in action, and has not the valuable properties of salicylic acid and salicylate of sodium. The effects produced upon the urine are of considerable clinical interest. That secretion presented a dark and somewhat greenish colour, as if mixed with blood, and when viewed by transmitted light it appeared yellow brown. The addition of a solution of perchloride of iron rendered the urine cloudy, and of a gray white colour. When the green colour predominated it might have been mistaken for icteric urine, or even for nephritic urine mixed with blood, but the absence of albumen would prevent such an error in the latter case. In order to avoid producing serious symptoms (delirium, collapse) the thymol should be given in small doses (3–4 grs.), repeated, so as not to give more than about 90 grs. in twenty-four hours.—[*Cf.* A good summary of the history and uses of thymol in a leading article, *Med. Times & Gaz.*, March 2, 1878.]

4. *Chloral, poisoning from moderate doses.*—Dr. A. Frantz relates two cases (*Berl. Klin. Wochens.*) which came under his notice in Cologne:—Case I. A man, aged thirty-four years, was admitted into hospital for a severe attack of alcoholic delirium. He was given 1½ grm. (19½ grs.) of chloral, and as the restlessness, notwithstanding, continued during the night, the dose was repeated on the following evening. Sleep was induced, but on the following morning he was found in collapse, and succumbed after a few hours.

Case II. An hospital attendant suffering from *delirium tremens* took two doses of 2½ grm. (38½ grs.) of chloral. He slept quietly during the whole night, but next morning the respiration became suddenly irregular, and he died in less than an hour.

An autopsy was made in each case. In the first there was found some hypostatic congestion of the left lung, with intestinal catarrh and intense cerebral congestion, but in the second case every

organ was absolutely normal. Frantz concludes that in these cases, as in almost all others, death supervened through syncope, due to a sudden paralysis of the cardiac muscle—a condition especially liable to result in alcoholic subjects.—(*Revue de Thérap.*, No. 16, 1877.) [*Cf.* Case of chronic chloral poisoning, by Dr. T. Inglis, *Edin. Med. Journ.*, Sept., 1877.]

5. *Danger of giving active drugs in cases of renal lesions.*—For a considerable time it has been known that, in cases of albuminuria, the kidneys are impermeable to odours—*e. g.*, turpentine and asparagus fail to communicate their peculiar odours to the urine in such cases. In a recent thesis M. Chauvet has collected observations showing that serious results may follow from active drugs when elimination is defective, and also how the mode of elimination of certain drugs is materially modified by the existence of disease of the kidneys. For example, the elimination of bromide of potassium which, in a healthy subject, is completed within twenty hours after suspension of the medicine, continues for thirty or thirty-five hours when the kidney is diseased. The susceptibility of albuminuric patients to mercurials is well known to English practitioners, and M. Chauvet refers to two cases in his own experience confirmatory of this. The author further cites two cases in which serious consequences, in one ending fatally, were produced by small doses of opium and of atropia, and alludes to the bearing of these facts from a medico-legal point of view.—(*Journ. de Méd. et de Chir.*, Juillet, 1877.)

DALTONISM.

A RECENT *mémoire* on Daltonism, by M. Delbeuf, calls attention to the following fact:—When a Daltonist looks through a solution of fuchsine his infirmity almost completely disappears. An ordinary eye looking through solution of chloride of nickel is no longer able to distinguish colours. M. Delbeuf explains Daltonism as follow:—In the spectrum the sensibility for colours is greater in the middle (green) than at the two extremes (violet and red). Daltonism is only an exaggeration of this normal fact, in such a way that green predominates over and eclipses all the other colours. By a fuchsine solution the colours in the middle of the spectrum are excluded, so that through a transparent disc of gelatine, coloured with fuchsine, green is no longer visible.—*Le Progrès Médical.*

S. W.

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL
SOCIETY.

FORTIETH ANNUAL SESSION.

Saturday, 11th May, 1878.

DR. DARBY, the President, in the Chair.

Diagnosis of Dropsy of the Amnion. By GEORGE H. KIDD, M.D., &c.

WE are indebted to the essay on Dropsy of the Ovum in Dr. M'Clintock's very valuable book on "Diseases of Women" for almost all that we know, with any degree of accuracy or precision, as to dropsy of the amnion. He designates it dropsy of the ovum, as indicating that it depends on a diseased condition of the ovum or its involucre, and not on the condition of the mother; but the more common name, dropsy of the amnion, seems to me preferable, as specifying where the excessive quantity of fluid is found. The disease is not by any means a very rare one, but when the quantity of fluid present is not very great its recognition is not perhaps of much practical importance. As the presence of a certain quantity of liquor amnii is a condition of health, it is necessary, as Dr. M'Clintock observes, to define where excess begins. He thinks in strictly natural pregnancies the quantity of liquor amnii seldom exceeds six or eight ounces, and sometimes is not more than two or three. He does not, however, include in his memoir any case as dropsy in which the quantity of fluid appeared to be under two quarts. Not unfrequently, however, the quantity greatly exceeds this. In one case under my own observation we collected eighteen pints twelve ounces—that is, more than two gallons, and I have seen many cases in which the abdominal enlargement and the consequent distress were very much greater than in this one.

When the abdomen attains a very large size from being distended with fluid, it becomes necessary to consider whether the case is one of "ascites," "ovarian dropsy" (either alone or combined with pregnancy), or "dropsy of the amnion." The resemblance of this latter condition to each of the

others is very great. Indeed Smellie has described a typical case of dropsy of the amnion as one of ascites, though it is evident from his remark as to the distended state of the uterus, that he was aware the fluid was contained in it. When so accurate an observer has done this I need not be ashamed to give you, as I mean to do, the details of a case in which I tapped what I believed to be an ovarian dropsy complicated with pregnancy, the subsequent history of which has convinced me that it was really a case of dropsy of the amnion; and I may, as a further illustration of the difficulty of the diagnosis, mention that I have been asked by two of the most eminent obstetricians of this city—one of them now, alas, no more—to assist in tapping cases supposed to be ascites, but which, on full examination, proved to be dropsy of the amnion. One of these cases we let run on to the full time, but the other we had to relieve by puncturing the membrane.

The directions given in our text-books, even the most recent, for the diagnosis of dropsy of the amnion are very imperfect, and refer only to the distinction between it and ascites. Thus, Dr. Leishman in his "System of Midwifery," follows Cazeau in laying down the following rules as sufficient to make the distinction, if the cases are uncomplicated:—"In ascites," he says, "the urine is scanty and thick, and the lower limbs and genitals are œdematous. There is also fever and constant thirst. It is difficult, if not impossible, to recognise the outline of the uterus, and, in the course of our examination by palpation, distinct fluctuation is to be detected. In dropsy of the amnion, again, there is normal urine and little thirst. The lower limbs are often perfectly free from œdema, or if it be present it is so to a comparatively small extent. The rounded form of the distended uterus can generally be made out, but the fluctuation is very deep-seated and obscure."

I need not say that a diagnosis founded on a comparison of symptoms such as these is necessarily uncertain, but, independently of this source of error, the data proposed to be used are almost all erroneous—especially the remarks as to the condition of the urine and the presence of fever.

When the quantity of fluid is very great and the abdomen is very large, the action of the heart as well as ingestion and digestion of food are greatly impeded. The patient cannot assume the recumbent posture, and the lower extremities, the labia, and the lower portion of the abdomen become œdematous; and the uterus, if the fluid be in it, is so distended, and its walls are so thinned, that its contour is lost, and fluctuation becomes so distinct that it can be seen by a person standing at a considerable distance from the patient. We all know that in healthy pregnancy as the uterus enlarges its walls become thickened and grow as the child grows, but here it seems to be different—the uterine walls become thin from over-distension, and hence there is distinctness of fluctuation, and we are unable to recognise the rounded form of the organ.

Dr. M'Clintock admits it is impossible to distinguish a case of dropsy of the amnion from ascites by any difference to be recognised in the fluctuation of the two tumours. Internal examination will generally, he says, supply stronger evidence. The expanded state of the cervix, the extreme tension of the lower segment of the uterus, and the ease with which the child can be displaced, are all corroborative signs of the ovum being unusually distended with fluid. He does not attach the same diagnostic value to the inaudibility of the foetal heart-sounds and of the placental murmur that some writers do, because in a considerable proportion of the cases the child is dead, and in many the pregnancy is not sufficiently advanced for the foetal heart-sounds to be audible. In some of his cases the os uteri was found open with the tense membranes projecting through it. When the uterus can be reached with the finger, and this condition discovered, the diagnosis is sufficiently easy, but when the distension is very great the whole uterus is so much drawn up out of the pelvis, and the patient has so much difficulty in getting into a position favourable for making an examination, that it is not at all easy to recognise the condition mentioned by Dr. M'Clintock; and, so far as my experience goes, moreover, it is rare to find the os open or the membranes protruding. As for the foetal heart-sounds, their presence proves the existence of pregnancy, but their absence proves nothing.

It appears to me the diagnosis of dropsy of the amnion from ascites may be made on principles more clear and definite than any that have been laid down. In ascites the fluid is free in the cavity of the peritoneum, in dropsy of the amnion the fluid is encysted; and, consequently, the same rules that enable us to distinguish ovarian dropsy from ascites, enable us to distinguish dropsy of the amnion or any form of encysted dropsy. When the fluid is free in the peritoneum the intestines float to the surface, and the highest parts of the tumour give out a clear note on percussion, the lower parts into which the fluid gravitates are dull on percussion. When the fluid is encysted the intestines are pushed upwards and backwards, and the highest parts of the tumour are dull, and the loins and epigastrium are clear on percussion. The study of ovarian disease has made us so familiar with this that one cannot help wondering that in text-books published so recently as those of Leishman and Playfair it has not been made use of as a means of diagnosis.

When it is established that the case is one of encysted dropsy, we have to inquire what form of encysted dropsy. It may be an over-distended bladder, or dropsy of the amnion, ovarian dropsy, or pregnancy and ovarian dropsy combined. When there is retroversion of a gravid uterus or any tumour pressing on the urethra, the bladder may be so distended as to be easily mistaken for an over-distended uterus or an ovarian tumour, but the dribbling of the urine, which is always seen in such cases, marks their true nature, and the use of a catheter eliminates that

difficulty. We have still to consider whether it is an ovarian tumour with or without pregnancy, or the affection of the amnion under consideration. Here we must for the present depend almost altogether on the history of the case and on the recognition, when possible, of the conditions mentioned by Dr. M^cClintock, to which may be added the state of the breasts and the presence of a body floating in the abdomen having the outline of a fœtus. As already mentioned, the uterus, when greatly distended with fluid, is usually drawn up high into the abdomen, and reached with much difficulty on a vaginal examination, so that the condition of the os and cervix are not easily ascertained, and the œdema and swelling of the labia add very much to the difficulty. This high position of the uterus is, however, in itself a feature of much importance in the diagnosis, for if the large fluctuating tumour in the abdomen be a unilocular ovarian cyst, the uterus, whether gravid or not, will probably lie low in the pelvis and be reached without difficulty; so that if the abdomen be filled with a large freely fluctuating tumour, having the characters of an encysted dropsy, and the uterus is so high up in the pelvis as to be reached with difficulty, the case, according to my experience, is likely to prove one of dropsy of the amnion. If, on the other hand, the uterus is low in the pelvis, with an encysted dropsy in the abdomen, the case is probably an ovarian cyst with or without pregnancy; and the condition of the os and cervix will enable us to decide as to the absence or presence of this latter condition, assisted by an examination of the breasts and the history of the case.

I will now read from our hospital case-book the case to which I have alluded, in which I was induced to tap, believing it to be ovarian dropsy:—Mrs. O., aged forty-one, was admitted into the Coombe Hospital on 7th May, 1873; had been married eighteen years, and had had seven children and two miscarriages, the last seven years ago. Her last child was born on the 3rd of July, 1869. Her menstruation was regular up to the last twelve months, since when it appeared at intervals of two months, lasting nine days, but causing no pain. Since last Christmas she was under the impression that she was pregnant. About three months since she fancied that she was a good deal larger than she ought to be, and suffered from pain in the right side. She consulted her physician, who said he considered there was an enlargement of the ovary, but did not think she was pregnant. On her admission into the hospital her abdomen was much larger than at the full period of pregnancy. It fluctuated freely on palpation, throughout its whole extent, and was dull on percussion anteriorly and below, clear in the epigastric and in each lumbar region. No solid matter could be distinguished. On examination with a stethoscope a soft blowing murmur was heard, synchronous with the mother's pulse. On examination per vaginam the uterus was found to be high up, the lips soft, and the os rather open. The body of the

uterus was reached with difficulty, but was believed to be enlarged. The labia and nymphæ were large and purplish in colour. No foetal heart sounds could be heard. There were dark areolæ round the breasts, but no glandular enlargements. The diagnosis arrived at was that it was ovarian dropsy complicated with pregnancy. On the 9th of the same month she was tapped, when we obtained fluid to the amount of eighteen pints and twelve ounces, of a pale straw colour. She returned home on the 12th, and on the 16th we had a letter from her husband announcing that she had been confined of twin foetuses, both of which were dead. We heard afterwards that she had no return of the dropsical affection, but that she became pregnant subsequently, went through the usual term, and was delivered of a healthy living child. We believed at the time that this was a case of ovarian dropsy complicated with pregnancy; but from the fact that there was no return of the tumour, and that she was delivered of dead foetuses, and subsequently became strong and well and gave birth to another child, I quite changed my opinion, and I now believe the case was one of dropsy of the amnion.

DR. MACAN.—There is great difficulty in distinguishing between ovarian tumour and dropsy of the amnion. We are able in the majority of cases of ascites to distinguish them from cases of dropsy of the amnion. An accurate examination of the abdomen should be made, and repeated if necessary; and if you find that the walls are very thin and that the uterus contracts under your hands so that you can feel its contractions and relaxations, this is, in some cases, sufficient to make the diagnosis of pregnancy certain. As to the circumstance of the tumour not coming down into the pelvis making it a case of dropsy of the amnion, I do not speak from experience, but I am not inclined to agree with Dr. Kidd on that point. If I should find a large accumulation in the abdomen and the uterus high up, I would be inclined to say that it might be a case of ovarian tumour connected with the uterus that had drawn the uterus up out of the pelvis; and I do not think that would be sufficient to make a distinction between ovarian tumour and dropsy of the amnion. The fact that dropsy of the amnion has been generally noticed as occurring with twins is interesting; and we have the testimony of Dr. McClinton, who has written one of the best memoirs on dropsy of the amnion, to the fact that only one of the twins is usually affected, which is one of the strongest proofs that it is not dependent on disease in the mother. Dr. Schroeder, a late writer on midwifery, thinks the placental murmur or uterine soufflet a most important matter. In Dr. Kidd's case it was heard; and Dr. Schroeder says that it is generally well marked and heard over a large surface of the uterus. This year a case was related to me by a doctor in Dublin in which the patient was tapped as for ovarian dropsy; and immediately afterwards—in fact before they left the room—some

slight discharge came on, and, within an hour or two, twins were born, one of which was dead and the other alive. I think from the facts of that case there is no doubt that it was one of dropsy of the amnion.

DR. MACSWINEY.—There is a procedure known as re-percussion, which is a very valuable means of determining whether there is a foetus in the uterus between the fifth and the seventh month. I would ask Dr. Kidd whether he attaches any value to that as a test or mode of distinguishing between the presence of a foetus in the ordinary condition of the uterus and the presence of amniotic fluid. Dr. M'Clintock, amongst his valuable annotations to "Smellie's System of Midwifery" has, in his first volume, a note in reference to diagnosis of multiple pregnancy on the one hand enlarging the abdomen to a greater size, and diagnosis of hydrops amnii; and Dr. M'Clintock attaches considerable importance to the fact that the foetus in amniotic dropsy will retire from the finger when re-percussed, whereas no such thing occurs at the close of ordinary pregnancy, which is usually the time at which hydrops amnii occurs. In Lee's "Operative Midwifery" the diagnostic marks of ascites, ovarian dropsy, and hydrops amnii, are given, as well as in any other publications in English medical literature, as far as I know. In the year 1862 I published a case in which an encephalous foetus was born from a woman who discharged two wash-hand basins full of blood.

DR. DOYLE.—I attended two cases in which the patients suffered from excess of the liquor amnii. In one we had to deliver the woman by instrumental means in consequence of prolonged labour. On the membranes being ruptured the fluid filled a stable bucket. The child had arrived at its full period and was quite healthy. In the other case I delivered the woman of a dead encephaloid foetus. In both cases the mothers went on favourably after delivery. One thing that struck me was the want of expelling pains during the labour in both cases. It seemed that from the over-distension of the uterus the muscular fibres were more or less paralysed and did not contract.

DR. M'CLINTOCK.—My memoir on the subject was written nearly eighteen years ago, and within that time, as Dr. Kidd has very properly remarked, our means of diagnosis of ovarian dropsy have been greatly enlarged, and we can now discriminate it from other diseases with much more precision than formerly. Dr. Kidd has taken advantage very properly of the progress of knowledge with respect to the diagnosis of what is strictly a cystic dropsy. I purposely called the disease "dropsy of the ovum," because in some cases the excessive amount of fluid is not contained in the amnion, but in the chorion. The term dropsy of the ovum would include either case. The most difficult cases to discriminate between are pregnancy with ovarian dropsy, and pregnancy *per se* alone. I think there is still room for improvement in our means of diagnosis on that point. As Dr. Macan has stated, the feeling of the uterus

occasionally supplies a very important diagnostic means in cases where we want to discriminate between enlargement of the uterus and some extra-uterine tumour or enlargement. In this particular case I believe the contractions of the uterus, owing to the enormous over-distension of the organ, are very feeble and almost imperceptible; and although I have been alive to the importance of that diagnostic sign, I must say that I do not think I have detected or observed it in any of the cases that have fallen under my notice. I do not know whether or not Dr. Macan speaks from direct experience on the subject, or merely puts forward this contraction of the uterus as a theoretical and highly probable aid to diagnosis. I have no doubt that if you feel such a contraction or hardening of a tumour, it would be the very strongest possible evidence that the fluid was contained within a distended uterus. I think myself that, on the facts of Dr. Kidd's case, the question is still open as to whether it was an ovarian tumour or not. I entirely agree with him that from what we know of the history of ovarian tumours the enormous probability is that he is right that the case was one of dropsy of the ovum, and that the dropsical accumulation was confined to one of the cysts—namely, the one that was tapped. In whatever light, however, the case be taken, I regard it as one of great interest. The tapping of the uterus was a very important experiment, and the subsequent history of the case shows us that such a thing can be done with impunity to the mother.

DR. CRANNY.—I may mention a case of a woman which came under my notice. She was taken with labour in the eighth month of her pregnancy, and when the membranes were ruptured twelve measured quarts of fluid were collected from her. The case brought forward by Dr. Kidd is a very interesting one, and important as showing that the uterus may be wounded without injury to the mother.

The PRESIDENT.—I was called on to see a case, in conjunction with a neighbouring practitioner, and with a view to some operative proceeding. The poor woman, who was in a cabin, appeared to be very large, and I gave a guarded opinion, for I half suspected that she was in the family-way. She was sent up to my hospital, and next day I found that she had given birth to twins, and that an enormous discharge of liquor amnii had taken place. It was her fourth month. She did very well afterwards.

DR. KIDD.—With regard to the uterine contraction to which Dr. Macan has alluded, I have in my paper drawn attention to the thinness of the uterine walls, and I do not know that I have anything to add to what has been stated by Dr. M'Clintock—I can only say that I have never discovered the contractions alluded to. The placental murmur was heard in the case that I have mentioned, but it is not in itself a proof of the existence of pregnancy. A similar murmur occurs in many abdominal tumours, and, perhaps, even in ovarian tumours. In fact it is a point not yet decided, as to whether a sound resembling the placental murmur is not

sometimes heard in ovarian tumours. It is heard in many forms of uterine tumours besides cases of pregnancy; and, perhaps, some of the loudest "placental" murmurs that ever I heard were in cases of uterine tumours in which there was no pregnancy. As to the re-percussion alluded to by Dr. MacSwiney, it is no doubt a very valuable sign where it can be employed; but when the uterus is high up in the pelvis and is reached with great difficulty, where you cannot be sure that you touch the body of it because it is so high up and the labia are so œdematous, it is difficult to ascertain the presence of re-percussion. In the last case I saw we looked for it very anxiously indeed, but did not succeed in discovering it; we found a solid body floating in the abdominal tumour. When it is recognised I think re-percussion is without doubt a most important symptom, and one that will go a long way towards distinguishing between ovarian dropsy and dropsy of the amnion. Dr. M'Clintock, as you are aware, has shown a further difficulty with regard to this matter of percussion. Where it happens to be the twin highest in the uterus that is the subject of dropsical condition, the lower twin is so pressed down in the uterus that it cannot be made to yield before the finger, and thus the symptom of re-percussion is not to be recognised. Dr. M'Clintock has explained that very fully in his memoir. Dr. Cranny is under a misapprehension as to the cases I have mentioned. In one of them the woman was allowed to go to her full time, and though she was greatly distended we did not think it necessary to interfere. She was near her full time when she was delivered of a living child. In the other case, twenty-four hours after the tapping the woman was delivered of a dead putrid child. The great point I wish to establish is that alluded to by Dr. M'Clintock—namely, the importance of distinguishing between encysted and free dropsy. That should be the first point to be settled in the diagnosis. We have been enabled by the progress of science to draw this distinction with a degree of accuracy that was unattainable a few years ago. Still the difficulty of deciding as to the nature of the encysted dropsy—whether it is an ovarian dropsy or a uterine dropsy—is, in my mind, very great; and if I were to meet a case similar to that which I have read to you, I am not sure that I should even yet be absolutely certain in my diagnosis. There had been a great deal of irregularity of menstruation beforehand in the case I have submitted; the woman appeared to be beginning to cease to menstruate—it, in fact, occurring only at rare intervals; and from the length of time that had elapsed since she had her last child, and her very great size, her medical attendant declared that she was not pregnant, but had an enlargement of the ovary. Notwithstanding that Dr. M'Clintock has been good enough to say that I did not fall into error, I believe there was an error in the diagnosis; but, if I erred, I erred in good company, for the case was seen by most of our leading obstetricians, and we all concurred that it was ovarian dropsy complicated with pregnancy.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF
DUBLIN.

President—EDWARD HAMILTON, M.D.

Secretary—E. H. BENNETT, M.D.

Aneurism of the Abdominal Aorta.—DR. HAYDEN said: I have to submit an example of aneurism of the abdominal aorta. A man aged forty-two, of very intemperate habits, was received into the Mater Misericordiæ Hospital on the 24th of last November. He was then apparently suffering very little. He informed us that, from time to time, he had had shooting pains in his back, which occasionally radiated through the abdomen, but were not very severe. Two years previously he had first complained of pain in the lower part of the back; and at the same time he noticed in the left lumbar region a swelling which pulsated perceptibly. He went on doing his work, and, I suppose, indulging in the use of intoxicating liquors. In the course of the year he observed another tumour in front, at the epigastrium, which also pulsated. He still continued his work and his habits until he was admitted into the hospital on the 24th of November. Dr. Gunn, who admitted him, was under the impression that he had aneurism; and, on examining the man, I had little doubt that such was the case. There was a large tumour in the epigastrium, yielding a heaving pulsation, and becoming tense at the acme of the cardiac systole. The impulse of this tumour was a little posterior in time to the apex pulsation. A tumour was likewise perceptible in the left lumbar region, of very considerable size, pulsating synchronously with the epigastric tumour, but not so forcibly. Neither tumour yielded a murmur. The heart pulsated very feebly. Both sounds of the heart were sharp and free from murmur, and the cardiac impulse was very weak. The epigastric tumour was about the size of a clenched hand, and projecting from it anteriorly was a succedaneous tumour as large as a walnut. The boundary wall of this accessory tumour was thin and more yielding than that of the other. I was able to trace the edge of the liver below this tumour in the immediate vicinity of the umbilicus. Below the edge of the liver the percussion note was clear, whilst above the tumour it was uniformly dull to the base of the chest. The tumour moved downwards with a strong inspiration. There was no difficulty in swallowing, for, on applying the stethoscope over the region of the stomach, and causing the man to swallow, the entrance of solids or liquids into the stomach was noted at the ordinary period after the act of swallowing, so that there could have been no obstruction of the œsophagus. Assuming

the tumours to have been aneurismal and connected, there was a difficulty in explaining how it was that a tumour of such vast size, the antero-posterior diameter of which could not have been under eleven inches, should have had so little influence on the man's general health, and caused so little suffering. This amounted only to an occasional paroxysm of pain in the night, which was always relieved by a hypodermic injection of morphia. He still had an appetite, took his food in the ordinary way, and slept well except when the pain was upon him. In the course of a few days I made the positive diagnosis of aneurism, and mainly from the circumstance that, on the 30th of November, a systolic murmur of a blowing character was heard over the lower and left aspect of the tumour, and slightly to the left of the middle line. On placing the patient in a prone position, the epigastric pulsation was in no degree modified. Thenceforward I placed him under the treatment which the Chairman (Mr. Tufnell) has so ably advocated in his work. I confined him strictly to bed, restricted his allowance of liquids, and increased his allowance of solids, kept his bowels moderately free, and gave at the same time large doses of the iodide of potassium—viz., 20 grains three times a day. He seemed to improve. In the course of a week the posterior tumour became solid and ceased to pulsate, and I announced to the class my gratification at this change, as evidence of the deposition of laminated fibrin in the sac, and its consequent solidification. In this opinion, however, I was mistaken. He seemed to improve, his appetite was better, he slept well, and the attacks of pain were less frequent—everything, in short, seemed to indicate that the disease was in process of cure, when, on the 26th of December, having previously felt unusually well, he screamed, had a slight attack of convulsions, and died in a few minutes. An examination of the body was made by Dr. Gunn. A tumour was found in the abdomen, which was fully the size of a large melon. The anterior portion of it was an outgrowth from the main tumour. The viscera were displaced. The left lobe of the liver was expanded on the interior surface of the tumour, attached to it and thinned. The liver edge that I felt lay in front of and below the tumour, whereas the great bulk of the organ was above, and yielded percussion dulness. This was what had created in my mind the main difficulty in the diagnosis of aneurism. Assuming that it was an aneurism, why should there not have been pulsation at the most prominent part of the tumour? The posterior tumour is seen here. The sac, which is rugged in the interior, was filled with loose separate clots, and there was no attempt whatever at lamination. The stomach was found to be singularly placed with respect to the aneurism. The latter had advanced behind the lesser omentum and pushed downwards the stomach, which was disposed like a girdle round the lower portion of it, whilst the œsophagus was pushed to its left, the cardiac orifice being considerably depressed. The right lobe of the liver

was pushed to the right side, and the spleen upwards and to the left. The left kidney was pushed downwards, and so displaced that its upper extremity was directed forwards. A rent had been formed in the posterior wall of the tumour, and a secondary diffuse false aneurism had been established. The blood had infiltrated the left lumbar and iliac regions, tearing up the psoas and quadratus lumbar muscles, and descending to Poupart's ligament. The blood so extravasated had coagulated. I exhibit a portion of it, probably two pounds in weight, which had become solid. This explains the solidification of the posterior tumour nearly a month before the man's death. His general condition had immediately previous to his death undergone no change for the worse. The only noteworthy change at this period was that, on the 30th of November, the pulse became dicrotous and intermittent for the first time. The rent which occurred in the superior posterior wall of the sac had subsequently passed through the diaphragm in front of the left external arched ligament. The blood found entrance thereby into the left pleural cavity which contained two or three pounds of blood. This was the immediate cause of death. Although the case is, in many respects an ordinary one, it presents some features of great interest. In the first place it is the largest aneurism I have ever seen. It is further remarkable in respect to the very trifling influence exercised upon the general circulation by the withdrawal from it of so large a quantity of blood as was represented by the contents of this vast tumour and the clots, especially as he was a man of small stature, being not more than nine stones in weight. It is further interesting in that the tumour moved with respiration. This is deemed one of the most valuable diagnostics as between aneurismal and other tumours of the abdomen, the latter of which move with respiration, while the former do not. In the present case the aneurism moved freely with respiration, manifestly because, owing to its great antero-posterior diameter and its attachment to the liver, it was amenable to the influence of the diaphragm. The heart was rather below the ordinary size. If aneurism be capable of producing hypertrophy of the left ventricle, as has been asserted by many, we should have expected to find the left ventricle greatly hypertrophied in this case, yet it is rather atrophic. Three of the vertebræ are slightly eroded on the left side, by the last dorsal and the first two lumbar. The aneurism had sprung from the aorta, just below the opening in the diaphragm, by an orifice large enough to admit the four fingers and thumb. The aorta was atheromatous. Above the heart, as Dr. Gunn has remarked, there is a second incipient aneurism. The valves seem to be healthy.—*January 26, 1878.*

Diaphragmatic Hernia.—DR. T. E. LITTLE, in showing this specimen, said: In addition to its interest as an example of an acknowledgedly very

rare pathological condition, this specimen presents certain points of otherwise special interest. The parts were removed from the body of a subject at present under dissection in the School of Physic dissecting-room, and I have been unable to obtain any details of the life history. The body, however, was that of an evidently aged female, of apparently between the ages of sixty and seventy. There was a marked and rather acute curvature of the back low down, the third and fourth lumbar spinous processes being those most prominent. This curvature was very symmetrical, with no lateral deviation, and no rotation of the vertebral bodies. It was plainly of very ancient date, probably due to the caries of the spine in childhood or youth, several of the bodies of the vertebræ being ankylosed. All the other organs of the body, excepting the back and the parts involved in the lesion in question, were remarkably normal, healthy, and well-nourished, insomuch that the body was an unusually favourable one for the purpose of demonstration.

On raising the sternum to expose the thorax, the lower part of the anterior mediastinum was found to be occupied by a globular mass of almost the size of a closed fist, and which, therefore, lay in front of the base of the pericardium and lower part of the heart. It was found to consist of a serous sac, which, on being opened, was observed to contain a loop of the great intestine and a considerable piece of omentum. These, further investigation shows, had become protruded from the abdomen through an opening in the diaphragm, at the left side of its attachment to the ensiform cartilage, between this and its attachment to the seventh rib. The opening thus forms an orifice in the floor of the anterior mediastinum, into the lower part of which the hernia had protruded. It is of about the size of a florin-piece, was evidently of very ancient standing, and has a well-defined, sharp, and slightly-thickened white edge, of almost perfectly circular shape. The piece of gut found in the hernial protrusion, after death, consisted of about fifteen inches of the transverse and descending colon, with the attached omentum. It is perfectly normal and healthy in appearance, naturally distended with gas (as was all the rest of the intestine), with no adhesions, nor any appearance of strangulation or congestion. We have, therefore, every reason for believing that, like other (more ordinary) hernias, the gut, in this case, was capable of being extruded through the abnormal opening, and of passing (wholly or partially) back again into the abdomen, according to its different conditions. It is possible, however, on closer examination, to make out two constrictions of the intestine, with slight thickening of its walls, the one above and the other below, which indicate the amount of gut which habitually remained in the sac—this measures about fifteen inches. The sac enclosing the hernia could easily be followed, as a process of the peritoneum protruded through the opening in the diaphragm, and was, through this opening, perfectly continuous, without any trace of wound,

laceration, or breach of continuity, with the general peritoneal sac. The hernial sac was in relation anteriorly to the sternum and costal cartilages, posteriorly to the pericardium, and, on the left side, to the pleura.

The most careful examination of the body failed to discover any cicatrix of an old penetrating wound of the thorax or abdomen, or any evidence of the fracture of a rib.

Remarks.—Pathological writers have made a threefold division of diaphragmatic hernia, viz. :—(1) Those due to a traumatic lesion of the muscle; (2) those due to a congenital deficiency of the muscle; and (3) those occurring through some of the normal openings, or weak points of the muscle. It becomes a question here as to which of these classes we are to refer the present specimen to. That it does not belong to the first, or traumatic class, is, I think, proved by—firstly, the entire absence of any evidences of such an injury as would produce such a lesion; and, secondly, by the conclusive evidence afforded by the existence of a well-marked peritoneal sac. Cruveilhier, long ago, laid down the pathological law that the absence of peritoneal sac forms the distinguishing mark of a traumatic diaphragmatic hernia, as contrasted with that not due to injury. Is the present case, then, a congenital defect, or a protrusion through some of the weak or open points in the diaphragm? As against the first of these suppositions, I think it is difficult to conceive of a congenital defect of this very limited extent, and in this situation; and it should be borne in mind that very few cases, if any, of congenital diaphragmatic hernia have been recorded in which life was prolonged to anything like the age of the present subject—the victim of such a deformity usually, in fact, dying within a few hours or days after birth. But anatomists will remember that, exactly at the spot where the opening exists in this case, there is, normally, a deficiency of the muscular fibres of the diaphragm, leaving a small, inter-muscular, triangular space between those of its fibres attached to the ensiform cartilage and those attached to the seventh costal cartilage. This space is, consequently, weak, and weak exactly in the way most predisponent to the occurrence of a hernia.* I think there can be little doubt that this affords us the true interpretation of the lesion before us.

Other cases of the occurrence of a hernia, through some one or other of the normal openings in the diaphragm, have been recorded—for example, I may instance a case given by Mr. J. D. Hill, in which such a protrusion occurred through the œsophageal opening (*Med. Times and Gaz.*,

* There exist the widest differences, in different subjects, in the extent and arrangement of the attachments of the diaphragm in this situation. In some these inter-muscular triangles at each side of the middle line are of considerable size; in others they can be scarcely said to exist. Moreover, they are often unsymmetrical; and I have satisfied myself, from repeated observation, that, as a rule, that on the left side is generally the larger of the two.

1869, Vol. II., p. 670); but I have not been able to discover any previously recorded case in which the site of the hernia was the opening here referred to; and, in fact, the only writer I am acquainted with who makes any allusion to such a possibility is the late Professor Harrison.

A specialty of this particular variety of diaphragmatic hernia, it appears to me worthy to be kept in mind, is the fact that the protrusion here occurs into the mediastinum, and not, as in the more common forms, into the pleural cavity, as such a condition would, presumably, lead to a very special class of symptoms and physical signs during life; and this case shows it to be a condition compatible with very prolonged life and apparent good health.

In consideration of the peculiarities of this individual case, it might be a question whether the long-standing existence of extreme spinal curvature low down, and the consequently longitudinal shortening of the abdomen, may not have predisposed to the occurrence of the hernia. It is conceivable that such a condition may have produced an exaggerated degree of upward pressure of the abdominal contents.—*Feb. 9, 1878.*

Occlusion of the Superior Vena Cava.—DR. BENNETT read the following communication from DR. WILLIAMS of Liverpool:—

“Maria Davies, aged twenty-seven, married, childless, came under observation at the Chest Hospital, in 1875, as an out-patient, under the care of Dr. Sannuels, and continued attending at intervals till her death. She complained of great difficulty of breathing, especially on exertion, and stated that this symptom, with swelling of face and chest, came on after an attack of rheumatic fever eight years before. She had also great giddiness, and, when stooping, would frequently fall down in what was supposed to be a fit. In appearance she was stout and florid, rather dusky looking; breathing slow and laboured, with laryngeal stridor; the least exertion increased the dyspnœa; lips bluish; pulse 30, sometimes only 25, never over 38. On examining the surface of the chest, remarkably enlarged and tortuous vessels at once attracted attention, the cutaneous veins being as large as the index finger. It was now noticed that the swelling was confined to the face and thorax, while both arms were free from swelling, also that the veins were somewhat larger on the right than on the left side. The only abnormal sign detected by the stethoscope was a loud basic systolic bruit, heard most distinctly a little to the right of the sternum on a level with the fourth intercostal space. There was no dysphagia. On the 1st October, while removing her furniture, she stooped, had a fit, and died in a few minutes. *Post mortem*, made eighteen hours after death.—Rigor mortis well marked, face, eyelids, ears, &c., all blackish-blue. Considerable bleeding occurred when the skin was cut, and a large quantity of blood continued to flow during the autopsy. Encircling the vessels, at apex of thorax,

was a mass of indurated areolar tissue, and some enlarged glands, but no *tumour*, aneurismal or otherwise; through this indurated tissue the superior vena cava felt like a firm cord, and with the finger could be traced to the innominate veins, which also felt indurated. Lungs healthy, but old pleuritic adhesions on the right side. Liver much enlarged. On removing the heart the superior cava and innominate veins were found to be completely obliterated, having contracted into strong impervious cords, the cut ends showing a smooth surface, without trace of an opening. The mitral and tricuspid valves were healthy, but the auricular septum was, to a great extent, ossified, and feeling quite hard when tapped. This has, to a great extent, disappeared since the preparation has been in spirit. Right auricle rather thickened; no vestige of an opening into it from vena cava superior could be found, the internal aspect of that portion of the auricle presenting a smooth polished surface. Permission could not be obtained to examine any other organs."

This woman, Dr. Bennett said, was seen by several medical men, and the nearest approach that any of them could make to an accurate diagnosis was that she suffered from partial obstruction of the superior vena cava. The heart now exhibited was in spirit for some time, and is in consequence discoloured and deformed from the way in which it lay; otherwise it is a fair specimen of a heart for an individual of the age recorded—twenty-seven. There is no apparent hypertrophy or atrophy, or any material deviation from the normal structure. In the right auricle what should be the entrance to the vena cava is occluded, the openings of the inferior vena cava and coronary vein being normal; where the superior opening should be there is a depression, but nothing more. On the endocardium two or three stripes of lymph and false membrane are to be seen, adherent on the surface, showing that the opening was in all probability occluded by inflammatory action. On the outer side of the vena cava, and as far as the bifurcation of the innominate veins, a mass of indurated tissue includes the cord-like remains of the cava, as the author states. In the other chambers of the heart there is nothing remarkable. The left auricle is quite normal. In the septum is a considerable quantity of calcareous matter, which rings when struck. It is not easily seen, but can readily be felt, and the sound is very distinct. It is clear from the condition of the parts that an attack of inflammation, starting probably, as described, in the mass of areolar tissue round the glands, at the top of the mediastinum, occluded the veins, and, at the same time, involved the tissue of the heart about the auricular septum. The only other point is, that the extreme slowness of the pulse suggested to me that, as the author had not made an examination of the tissues of the heart, I should make a microscopic examination of the tissues. I accordingly examined a piece from the *carneæ columnæ*, and I do not

think I ever saw healthier fibre. There was no trace of fatty degeneration, nor any change, as far as the microscope could show, which could explain the slowness of the cardiac action. I was also struck with the fact, on examining the case, that the site of the inflammatory action which dated eight years before the woman's death, when she was somewhere about nineteen or twenty years of age, and the whole of the inflammatory induration, was situated round the nerve centre at the base of the heart and the pneumogastric nerves. Those nerves have not been preserved, but there is enough to show that the cardiac plexuses would have been considerably involved in the matter. Whether these may afford any explanation of the slow pulse or not I cannot say.

DR. LITTLE.—A remarkable point in the case is the extremely small size of both auricles, and the evidences of intense inflammation existing at the base of the heart.

DR. HARVEY asked are the pulmonary veins all right?

DR. BENNETT.—They are. I should have mentioned that the vena azygos must have been occluded, although it is not mentioned in the communication.

DR. HARVEY said the slowness of the pulse is the most interesting point in the whole case. I am very doubtful as to whether it can be accounted for by any nervous lesion. If it be supposed that there was a nervous lesion affecting the ganglia at the base of the heart, the results would have been much more serious than followed in this case. If it were a lesion of any branch of the pneumogastric nerve it would have the effect of accelerating the heart, or it could only act by slowing the heart as an irritant. I can hardly imagine an irritant arising from such a source and so continuously acting. It may be accounted for better by a lessening of the endocardial pressure on the auricular walls from the slow return of the blood.—*February 9, 1878.*

Fracture of the Shaft of the Femur, with Inversion of the Lower Fragments.—DR. BENNETT said: The specimen now submitted is one which I obtained some time ago, fortunately with the history of the case during life. Perhaps few museums contain specimens of a femur more deformed by fracture than this is. Again, it presents the remarkable peculiarity of complete osseous ankylosis of the knee, both as respects the tibia and the patella, while the fibula is not ankylosed. The characters of the ankylosis are those resulting from disease and not from injury. The tibia is sub-luxated backwards, and has rotated, perhaps, a fifth of its circumference outwards, while the patella is ankylosed to the outer condyle. In the shaft of the femur two fractures have occurred, and are united with these very remarkable features. Both fractures are characterised by the exceptional features of inversion of the lower fragments. If I place the head of the femur in normal relation to the pelvis the

central fragment is seen to be inverted, while again the lower fragment is inverted upon the central—so that if the head of the bone be in a normal direction, the leg bent at an angle on the thigh would be placed at right angles to the mesial plane of the body. The history of the case shows how cautious one should be in expressing an opinion as to the history of an accident deduced from a mere examination of *post mortem* specimens. Almost every one that has seen this up to the present has been inclined to say that the bone presents evidences that the fracture never could have been treated by any respectable surgeon; and again, most men who have examined the specimen have been apt to attribute the destructive disease of the knee-joint to the injury which fractured the bone. The patient was an old man, who was admitted to the hospital with malignant disease of the abdomen and stomach, which was proceeding very rapidly to a fatal issue. I took the opportunity on seeing his crippled limb to investigate his history very carefully with reference to it. In early life, when he was about sixteen or seventeen years of age, he suffered from destructive disease of the knee-joint. He was not very definite as to the cause, but he gave the ordinary history of destructive disease of the knee-joint, which laid him up for many years. When he began to go about, he was strongly addicted to drink; and on two occasions—one of them not very remote from the time of his death, when he was somewhere near seventy years of age—he got falls while drunk, by which, among other injuries, the fractures were produced. On both of those occasions it was the stiff ankylosed knee that determined the nature of the fracture. He was on one occasion treated by a surgeon of some eminence in his own house, and on another by a surgeon of one of the leading hospitals; so that this extreme deformity occurred while the case was under recognised efficient treatment. But anyone who has treated a fracture of the femur, happening under the condition of an ankylosed knee, will not wonder at the extreme deformity. I have treated two of them, and both were nearly as crooked as this. In addition to the case being a curiosity as exhibiting remarkable inversions in the two fractures, it shows how guarded our inferences should be as to the antecedents of such a deformity. One of the fractures occurred about fifteen or twenty years ago, and the other seven or eight years ago. I should have mentioned that the bone is remarkably heavy and strong, and free from any sign of malignant disease. From an old man of that age it is a remarkably heavy dense femur, and not in the least greasy.—*February 16, 1878.*

Carcinoma of Liver.—DR. J. W. MOORE said: This specimen of carcinoma of the liver was removed from the body of a woman whose age was stated to be forty, but who was apparently older, and who died at the Meath Hospital yesterday morning. There are some very interesting

facts connected with the clinical history of the case. The woman was a cook by occupation, and enjoyed tolerably good health—in fact, perfectly good health—up to Sunday, the 4th of last November. For some years previously, however, she had not menstruated, but my impression is that that was because she had passed the climacteric period. On Sunday, the 4th of November, she visited a fellow-servant who was ill of pleuropneumonia in the Whitworth Hospital. She remained some time, but on leaving the hospital got a shivering fit. The day was stormy and wet. She remained sickly during the few following days, complaining of general discomfort and loss of appetite, although her bowels were perfectly regular. On the following Thursday a violent rigor set in. She complained of severe headache on Friday. She took to bed that evening, and according to Dr. Harvey's observation her temperature was 104.7° , and somewhat later it rose to 105.1° . We both thought that evening that she was in typhus fever, it being the fifth day of her illness, and there being some very suspicious symptoms. Early next morning her temperature was again taken, and was found to have fallen from 105.1° to 96.9° . She had profuse perspiration in the course of the night, and that evening her temperature rose to 102.4° ; but it again fell next morning to 96.8° . This alternate rise and fall of temperature went on for several days, until on the ninth day of her illness her morning temperature, with a certified thermometer, was found to be 95.8° . Both Dr. Harvey and I examined the condition of the abdominal organs. She had never been out of Ireland, and there was therefore no reason to suppose that she had been subjected to exposure to malaria. We could detect nothing astray with the liver, and the spleen was not remarkably enlarged. She was admitted into the Meath Hospital, and remained under treatment until the 4th of January last; and I may sum up by saying that after this very peculiar intermittent fever had run on to the fortieth day she became almost completely apyrexial. Quinine was given in large doses, and almost completely failed as an antipyretic in her case. This reminded me of an observation I often heard the late Dr. Stokes make, that pseudo-intermittent fever did not readily yield to the action of sulphate of quinine. After the fortieth day she was put on arsenical and iron preparations, and seemed to progress favourably. But she became prematurely aged; her hair turned iron gray; she became anæmic, and complained that she was not gaining strength. In the belief that change of air might possibly be of use to her, she was sent on the 4th of January to the Convalescent Home, Stillorgan. Up to that time careful clinical examinations had been made from time to time, but nothing could be detected materially astray with any of her abdominal organs. After she had been a week in the Convalescent Home she began to notice that it was with difficulty that she could fasten her stays, and she experienced a sensation of fulness in the upper part of the abdomen,

and very shortly afterwards a sensation of weight and some amount of pain. She returned from the Convalescent Home about the 1st of February, and was again seen by Dr. Harvey, who at once ascertained the existence of a very large tumour in the right hypochondrium. This tumour was not nodulated to the feel, but was distinctly globular; but at the same time we ascertained the existence in the right lumbar region of one or two very hard lymphatic glands. There was another at the right sterno-clavicular articulation, and one or two others were perceived scattered about. On moving the hand backwards and forwards over the abdomen a distinct nodular sensation was perceptible. We thought that this was due to the engagement of the peritoneum in a cancerous formation. That she was suffering from carcinoma of the liver we had now scarcely any doubt. She was admitted to the hospital for the second time on the 18th of the present month. The clinical charts of her two illnesses present a remarkable contrast in respect of the extraordinary variations of temperature only observable in the first of them. Her condition the second time was essentially sub-febrile, the highest temperature recorded being 101.2° , while her morning temperature was usually normal. About a week ago considerable ascites was detected, and at the same time her breathing began to get shorter and shorter, and she was troubled with a very distressing cough, accompanied with frothy expectoration. A physical examination of the chest showed complete and encroaching dulness on percussion over the right base. We believed the liver was pressing upwards and backwards into the thoracic cavity, and compressing the lung above it. At that time we anticipated that death would occur rather from some thoracic complication than from anything else. From the outset of her illness there was decided failure of the heart's action. Yesterday morning she ate a hearty breakfast, and we did not anticipate her sudden death. Shortly after her breakfast she got out of bed to go to the fire for a little. The nurse left the ward for a few minutes, and when she came back she found her dying; and they had just time to place her in the bed when she breathed her last. Dr. Harvey made a *post mortem* examination eight hours after death, and I took down the following note from his dictation:—The patient was apparently well nourished. There was hypostatic congestion. The rigor mortis was imperfectly marked; the skin over the breasts flabby; the face deeply coloured with purple marks. Near the right sterno-clavicular articulation were one or two small indurated glands, and there were one or two others in the right lumbar region. The abdomen was greatly distended. On making a section through the parietes of the abdomen we came on an immensely thick layer of subcutaneous fat, which was an inch and a half thick just below the umbilicus. It was this great cushion of fat which prevented us from isolating those remarkable nodules, and only

allowed us to feel a globular mass. There was a very large ascitic collection in the peritoneal cavity. The lobuli of fat in this large cushion gave rise to the nodular sensations which we felt all over the abdomen. On further examination we found the parietes of the peritoneum healthy. The liver was found to project in an enormous mass between the ribs on the two sides. The lower margin of it was within a finger's breadth of the crest of the right ilium, and from that ran obliquely to the end of the tenth rib on the left side. This enormous projection was caused by the development behind the liver of a great mass of disease engaging the pancreas and the retro-peritoneal glands. On opening the thorax we found very extensive pleural effusion on the right side. The right pleural cavity had not a single adhesion worth mentioning, and it was nearly full of fluid. In the left pleural cavity also there was a considerable quantity of fluid. On opening the pericardium we found no abnormal effusion. The right lung was almost completely collapsed; it was perfectly airless throughout, the middle lobes of the lung and a small part of the apex being the only portions that still contained air. In the lower lobe are one or two cretaceous nodules, but these do not bear materially on the case. The left lung is comparatively healthy, there being no adhesions except a slight one at the middle line. The spleen was enlarged to some extent, but the enlargement was not very considerable. There were also some slight traces of peritonitis. The peritoneum covering the left kidney was studded with white nodules, which also existed in the perinephritic fat. The capsules of both kidneys are easily detached. The kidneys are congested, but are otherwise quite healthy. In the earlier part of the illness, at all events, there was no albuminuria. The great omentum, was attached to the liver, it was loaded with fat, and contained small hard nodules. The transverse mesocolon and the mesentery were likewise beset with nodules. On cutting into the lesser peritoneal pouch, a large carcinomatous mass was found pressing forward against the stomach and liver. The gall bladder was extremely diseased—in fact, the true gall bladder had almost entirely disappeared. There was a greatly diseased pancreas, and also an enormous mass of infected retro-peritoneal glands. Dr. Harvey examined the uterus, the ovaries, and the rectum, and found all to be perfectly healthy. The intestine, of which I have brought a portion, consisting of the lower part of the ileum and the upper part of the colon, seems also to be perfectly free from disease. With regard to the condition of the heart, there seems to be a good deal of superficial deposit of fat, but we did not examine it until to-day. Her death seems to have been brought about by the condition of the right pleura and the right lung. There are some patches of atheroma in the aorta, and also in the curtain of the mitral valve. As to the origin of the disease, and the relation of the first intermittent

fever to the cancerous degeneration of the liver, I am not able to offer any remarks.

DR. FINNY.—Is Dr. Moore of opinion that the disease was primary in the liver or in the pancreas. It is very unusual to find disease of that form in the liver alone. Some of these nodules are cupped and others are not. Does he consider the cupping due to the progress of the disease or to the pressure of the surrounding parts?

DR. HARVEY.—As to where the primary disease existed it is difficult without a careful examination to say anything. Probably the primary disease was in the pancreas. The cupping I think is due to fatty degeneration of the centres of the nodules.

DR. MOORE.—I have been always taught that the cupping in the centres of the nodules is due to some form of degeneration, perhaps fatty, resulting in the falling in of the centre.—*February 23, 1878.*

ANEURISM OF THE AORTA TREATED BY OPERATION.

M. GUENEAU DE MUSSY has brought under the notice of the Académie de Médecine a paper by Dr. Guido Baccelli, under the above title. He believes the suggested treatment feasible in cases where the tumour is sacciform, communicating with the main trunk of the aorta by a narrow opening, and in close relation with the anterior wall of the thorax. The mode of procedure is as follows:—With the view of producing coagulation of the blood circulating in the sac, and the gradual obliteration of the latter, he proposes to introduce into the middle of the tumour a trocar .06 of an inch in diameter. By means of this trocar he inserts one or more fine watch springs .04 of an inch in size; these springs become centres of coagulation, which, collecting together, should interrupt the communication between the sac and the vessel; in time they undergo oxidation, break up, and probably disappear in the middle of fibrinous clots. In the first case in which the operation was practised, for want of a proper appliance, the whole of the spring could not be introduced, and the portion that remained outside irritated the neighbouring tissues, and sloughing took place. In the second case everything seemed to go favourably, and pulsation was diminishing in the tissues, when a student, roughly applying the stethoscope, caused an intense pain, and the tumour immediately afterwards increased in size. M. Baccelli thought, and the autopsy justified his theory, that the pressure of the stethoscope had detached peripheral coagula, and that the blood, passing into the empty place, had afresh dilated the aneurism. Two important facts resulted from his experiments—first, the introduction of the trocar gave rise to no serious hæmorrhage; secondly, the presence of a foreign body in the sac provoked no inflammation nor sign of irritation in the living membrane of the sac.—*Revue Médicale.* S. W.

CLINICAL RECORDS.

Four Cases of Effusion into the Pleura, illustrating four different methods by which the fluid may be gotten rid of. By ROBERT SAMUELS ARCHER, A.B., M.B., Univ. Dubl.

I BRING this series of cases (selected from my notes) before the profession, not on account of anything uncommon, or very interesting in them as cases, but as being good examples of pleurisy with effusion, and as illustrations of the methods by which such collections of fluid may be gotten rid of by the efforts of nature, and by surgical interference. Two of them exemplify how such an event may occur by two different natural ways—viz., by discharge of the fluid through a bronchus (Case II.); and by absorption (Case III.); and how it may be removed by art—viz., by tapping (Case I.); and aspiration (Case IV.).

At present there seems to be a good deal of difference of opinion as to how these kind of cases should be treated. Some practitioners would tap the chest on the first appearance of the effusion, if to any extent, whilst others wait for so-called “urgent symptoms”—viz., dyspnoea (marked), shakey pulse, and such like. I am inclined to side with the latter up to a certain point. However, if, after a reasonable time and a fair trial of remedies, as happened in the first of the following cases, the fluid did not begin to sensibly diminish, I should draw it off without waiting for “urgent symptoms.” It appears to me to be very important that the fluid should not be allowed to remain in the chest for a long enough period to so compress the lung as to deprive it of its elasticity, and thus prevent its thorough expansion after its withdrawal, and also that it should not be left long enough to become purulent. When the latter is the case, as shown by the constitutional disturbance, I think the best treatment is free incision into the chest, and the insertion of a drainage tube, and the washing out of the cavity with antiseptic lotions. This course would certainly appear to give the best chance to the patient—of course the strength should be kept up with good nourishment and a moderate amount of stimulants, and *quinine should be administered in good sized doses to keep the temperature as low as possible.* I would say here that an effusion should never be allowed to remain in the chest for a sufficiently long time to become purulent. In the last of the following cases the fluid was semi-purulent, and it did very well after a single aspiration, but I was quite prepared, had the constitutional symptoms and the rapid

re-accumulation of fluid warranted it, to incise the chest, introduce a drainage tube, and wash the cavity out a couple of times a day.

CASE I.—*Left Pleural Effusion, cured by tapping with a moderate sized trochar and canula, the fluid being allowed to escape under water.*—Eliza E., a servant girl, aged fifteen years, was admitted to Weston Super-Mare Hospital on January 5th, 1874, under Dr. Gourlay's care. About six weeks before admission she was attacked with a pain down the left side. On admission, she complained of pain at epigastrium and cough. The apex beat of heart was in the epigastrium. Heart's action feeble. The entire of the left side of the chest from the clavicle in front and the spine of the scapula posteriorly downwards gave forth an absolutely dull note, and was very resistant on percussion. Percussion note on right side normal. Respiratory murmur over entire of left side was *extremely feeble and very distant*, hardly perceptible at all. Respiration on right side puerile. Dyspnoea at this time was slight, and not at all in proportion to the extent of the effusion. Marked prominence of infra-clavicular region, and intercostal spaces on left side; this side was motionless during the respiratory act. Decubitus was diagonally sinistral. She was ordered nourishing diet, and syrup of the iodide of iron.

Jan. 12th.—Pulse 108; pain in epigastrium has gone; cough troublesome; she sleeps well; physical signs remain unaltered on left side; percussion note over right side is not so clear as it might be, but the respiration here is everywhere good. The measurements of the chest were—left side, on level with xiphoid cartilage, 15 inches; right 12; round mammary line—left side, 15½ inches; right, 13 inches.

17th.—Pulse 118; temperature 102.4° F.; respiration 40. The physical signs remaining unaltered, it was determined to tap the chest. Mr. Martin, Surgeon to the Hospital, performed the operation, Dr. Gourlay and myself being present. A medium-sized trocar was plunged into the pleural cavity between the sixth and seventh ribs, near their angles; a long piece of India-rubber tubing was attached to the cannula (on a side tube), its distal end being inserted into a bucket of water to prevent the entrance of air; 55 ozs. of brownish yellow fluid were withdrawn. As the fluid gradually flowed through the tube, moist râles became audible in the upper part of the chest, showing that the pulmonary tissue was even already commencing to expand. After the withdrawal of the cannula, and the closure of the wound in the ordinary way, moist râles were audible over almost the entire of the left thorax, and the percussion note was much improved. The apex, instead of beating in the epigastrium, was found to have receded to a point between the sixth and seventh ribs about 2½ inches inside a vertical line through the left nipple. After the operation the patient was much relieved, and expressed herself as being "able to breathe." Cough troublesome. The fluid that was withdrawn, on cooling, subsided to the bottom of the vessel of water as a gelatinous

mass, tinged with blood. Under the microscope an abundance of blood corpuscles were visible in the gelatiniform substance; coughed up a deal of frothy sputa.

18th.—Morning pulse 100; temperature 98°; respiration 34. Evening pulse 120; temperature 102°; respiration 38. She seems rather weak; had a good night. Measurements of chest were—on level of xiphoid cartilage, left side, 12½ inches; right, 12 inches; round mammary line—left side, 13½ inches; right, 13 inches. Left side still somewhat dull. The moist râles and frothy sputa, which were expectorated for several hours after the operation, have vanished. Faint respiration audible over the entire of the left side, mingled posteriorly with some tubular breathing.

19th.—Decubitus dorsal; left side still more fixed than the right; morning pulse 104; temperature 98°; respiration 28. Evening pulse 106; temperature 99·2°; respiration 32.

21st.—Pulse 102; temperature 99·6°; respiration 32. Respiratory murmur on left side improving.

22nd.—Pulse 104; temperature 98·6°; respiration 30. Apex beat receded about 1 inch nearer left nipple line. A blister ordered to left side.

23rd.—Pulse 110; temperature 101°; respiration 32. Blister did not "rise well." Coughed a good deal during the night.

26th.—Pulse 104; temperature 98·6°; respiration 34. The percussion note and respiratory murmur are much improved. A very well-marked pleuritic friction sound "like the creaking of strong leather" is heard anteriorly as low down as the fifth rib, and posteriorly down to inferior angle of scapula. A well-marked "bruit cataire" is felt on applying the hand to these regions. The apex beat has gone up about another half inch.

27th.—Pulse 104; respiration 32; temperature normal. Friction sound almost entirely gone; only a very faint "rubbing" can be detected. Sleeps well

28th.—Friction sound very distinct again this morning; another blister to the side.

30th.—Pulse 90; respiration 28. Very faint trace of friction sound; percussion note still dull over inferior portions of left lung; clear from clavicle to fourth rib, and in supra-spinous region behind. Respiratory murmur much subdued over those parts where the dullness is most distinct; fairly good elsewhere. Gets up now every day.

It is unnecessary to follow this case in the remaining parts of its daily progress—suffice it to say she improved rapidly, "never looked back," and ultimately got quite well, and became a strong, healthy, well-developed woman, no deformity whatever remaining.

CASE II.—*Left Empyema cured by Spontaneous Discharge through the Bronchi, &c.*—Edward D., aged eighteen years, a mariner, admitted to

West Derby Union Hospital, June 22nd, 1877. According to his own account he was ill about five weeks altogether; at first he was attacked with a stitch in the left side; had undefined rigors when on the West Coast about twelve months before; never had yellow fever.

On admission he complained of a short dry cough, dyspnoea, and pain in left side of chest; has lost flesh. There was complete dulness from the nipple line in front, and from the spine of the scapula posteriorly downwards on the left side. The line of dulness shifted on change of position, vocal fremitus was entirely wanting, and respiratory sounds *extremely feeble and distant* over the area of dulness; respiration fair in apex of left lung; percussion note over right side of chest normal, and breath sound slightly puerile; left chest $\frac{3}{4}$ -inch larger than right at nipple line; heart dislocated towards the right side; apex beat under floating ribs in left side of epigastrium; impulse greater at right side of sternum than left; sounds normal.

June 24th.—Pulse 104; temperature 102°. About 2 a.m. he was suddenly seized with a "tickling in the throat," a suffocative feeling, and troublesome cough; between this time and my visit at 9 30 a.m. he had coughed up about a pint of purulent matter, and was continuing to bring up the same kind of stuff, mixed with a few air bubbles; dulness and position of heart unchanged; loose râles could be heard feebly, as if at a distance over left chest, where there were none such yesterday. My diagnosis was an empyema discharging through a bronchus. He was ordered beef tea, eggs, milk, 6 ozs. of wine, lemonade and ice to quench thirst, and 5 grains of quinine in solution every fourth hour.

25th.—Pulse 106; temperature 99°. Slept fairly well during the night; decubitus dorsal; lying on *right side* makes his cough worse; no sounds whatever were audible over the dull portions of left thorax; hectic blush on face; sweats occasionally.

26th.—Pulse 96; temperature 99·9°. Decubitus diagonally sinistral; coughing up a good deal of muco-purulent sputa; passed a good night.

28th.—Pulse 94; temperature 98·9°; respiration, 30. Superior part of left chest from clavicle to third rib anteriorly, and from spine of scapula upwards behind, hyper-resonant; and the breath sounds are much masked and feeble here; all other parts of left chest absolutely dull; sputa not quite so abundant; perspiring slightly.

29th.—Pulse 104; temperature 99·2°; respiration 30. Much harassed with cough since 5 p.m. yesterday; expectorating a large quantity of frothy yellowish sputa, mingled with pus; not perspiring. Ordered quinine in 5-grain doses, with chloral, hydrochlorate of morphia, and syrup of squill, every fourth hour. Heart's apex has moved up slightly towards its normal position; some tubular respiration audible on affected side; extent of dulness unaltered.

30th.—Pulse 94; temperature 99·1°; respiration 26. Has not been

troubled with cough since 5 p.m. yesterday; does not expectorate nearly so much; very much easier; sweats occasionally. Ordered him a drachm of syr. ferri. iod. twice a day, along with his mixture.

July 1st.—Pulse 90; temperature 99.2; respiration 28. Again very much troubled with the cough, and expectorates a large quantity of frothy purulent sputa.

2nd.—Heart's apex moving up, and is now about one inch internal to a vertical line through left nipple, and about two inches below its level; line of dulness has now receded to below the nipple line in front, and the angle of the scapula behind; the dulness is not nearly so wooden as it has been, nor does it give that impression of resistance which is so characteristic of effusions into the chest; fairly good respiration, mingled with tubular breathing in upper portion of lung; the base of the lung is the only part now in which respiration is entirely wanting; side beginning to move in the respiratory act.

4th.—Pulse 100; temperature 100.2°; respiration 36. Sputa again abundant, muco-purulent, and frothy; seems to be some falling in or flattening of left side; subdued and distant respiration can be heard over the entire of the left lung; the respiratory murmur is more feeble in the anterior superior part than elsewhere; here percussion elicits an abnormally clear, tympanic, high-pitched note; respiration in right lung somewhat puerile.

8th.—Pulse 88; temperature 98°; respiration 30. For the last four or five days expectorating large quantities of purulent matter, in which there are very few air bubbles. Ordered quinine, tincture of perchloride of iron, and spirit of chloroform in pretty full doses, thrice daily; to stop the syr. ferri. iod., as it made him sick. Physical signs much the same.

12th.—Pulse 106; temperature 99.4°. Complains of pain, and says it catches him over the area of the apex beat when he coughs or takes in a long breath.

13th.—Pulse 104; temperature 100.6°; respiration 36. Over the third and fourth ribs and intervening intercostal space on left side, for three or four inches extending from left border of sternum, a kind of friction jerk can be heard; this is synchronous neither with the heart's action nor the respiratory movements, but is as it were intermediate between both. I think it is probably caused by the roughened external surfaces of the pericardium and pleura rubbing together. This continued for a couple of days. Fair respiration in upper part of left lung anteriorly to nipple line and posteriorly to angle of scapula; below these levels respiration is subdued and mingled with tubular breathing; percussion note clearing.

17th.—Pulse 114; temperature 102°. Passes easy nights; cheeks occasionally flushed. A pleuritic friction sound was heard this morning between the left nipple and the edge of the sternum; percussion note in

upper part of left thorax still abnormally tympanitic, and the respiration rather distant and suppressed; dulness over lower part clearing; respiration blowing and distant; some mucous râles; bronchophony; sputa more of a bronchitic character, not so purulent.

20th.—Pulse 120; temperature 102.8° , which fell to 98.8° next day. Hectic flush on cheeks; cough very troublesome, bringing up a large quantity of thick viscid sputa. Brandy was increased from 4 to 6 ounces. Takes his nourishment very well considering.

24th.—Pulse 104; temperature 99.2° . Cough again has become easier. Posterior part of left chest still somewhat dull; respiration here distant, and feeble tubular breathing has vanished. In front the percussion note is clear, and respiration fairly good.

28th.—Pulse 98; temperature 98.8° . Left side of chest round nipple line measures $15\frac{1}{2}$ inches, right 15; percussion note much clearer over entire of left side, not much difference now between it and the right side in this respect; respiration, superiorly—in front and behind—good, but in other parts feeble and mixed with an occasional râle; ægophany; sputa more bronchitic in character; pain in left side when he coughs.

31st.—Cough again troublesome. Pulse, 120; temperature, 99.3° .

August 6th.—To have, instead of the mixture he has been taking, iodide of potassium, carbonate of ammonia, and bark.

10th.—Physical signs remain unaltered, still at times bringing up large quantities of frothy mucus, mingled with a little puriform matter.

20th.—Friction sound at level of junction of third and fourth ribs with sternum on left side.

September 5th.—Up now every day; cough much easier; sputa lumpy and not so profuse. Pulse still keeps rather quick; temperature normal. Complains occasionally of "catching" pain in left side.

13th.—Improving till a couple of days ago, when the cough again became troublesome, and expectoration rather profuse. He sweats occasionally and does not pass so good nights. His appetite is not so good. Pulse ran up to over 100; temperature about normal.

25th.—Has again "picked up." Left side is again comparatively speaking dull, and the breath-sounds are feeble posteriorly from angle of scapula downwards; slight falling of left shoulder; left nipple is on a slightly lower level than right; apex beat about two inches immediately below left nipple; percussion note and respiration good all over the right side, as also in upper two-thirds of left chest anteriorly and upper half behind; hardly any cough now, and expectoration has quite ceased; looks strong; appetite very good; and he sleeps well. Measurements of chest—nipple line, right side $16\frac{1}{2}$ inches, left 15 inches; at level of xiphoid cartilage, right side 16 inches, left $14\frac{1}{2}$ inches.

October 2nd.—Slight return of cough, and very sparse expectoration.

About a fortnight after this he was discharged from hospital, practically speaking, cured.

CASE III.—Left Pleural Effusion ; Absorption of the Fluid.—William B., aged twenty years, a labourer, was admitted to West Derby Union Hospital on September 27, 1877. He got a severe wetting about three weeks before admission ; a couple of days after this he had a stitch in his left side and a rigor. He had to give up work on account of shortness of breath and pain in the left side. Had always been healthy up to the time of his present illness ; family history good ; all his brothers and sisters living.

28th.—Complained of troublesome cough ; expectoration very scanty ; left chest, from clavicle in front and tip of shoulder behind, gives forth an absolutely dull wooden sound on percussion. There was the very faintest trace of distant respiration, and an entire absence of vocal fremitus over the whole of the affected side. Apex beat of heart was situated at right side of sternum, about an inch below the *right* nipple ; epigastric pulsation ; heart's sounds normal ; action excited. Right side of chest normal, except posteriorly and inferiorly, where there was some dulness and feebleness of respiration, and some moist râles anteriorly and inferiorly ; tongue slightly furred ; skin hot and dry. He was ordered beef-tea, milk, eggs, 4 ozs. of brandy—and 5 grs. of potassii iod. every four hours. Measurements of both sides of chest the same. No bulging of intercostal spaces yet.

30th.—Pulse 116 ; temperature $102\cdot4^{\circ}$; respiration 36. Some respiratory murmur heard posteriorly, especially on drawing a full breath, but no change in the dulness ; urine scanty and high coloured. To have ʒss. of potassæ cit., ʒss. of spts. eth. nit., with a little syrup of squill in infus. of Scopar., in addition to potassii iod.

Oct. 1st.—Pulse 124 ; temperature $102\cdot2^{\circ}$; respiration 36. Sputa more profuse and frothy (bronchitic) ; still passes very little urine ; percussion note, over entire of left side, of wooden dulness, and very resistant ; respiration over left chest somewhat stronger, probably a good deal of it is conducted from the sound side, where it is rather puerile. Heart's apex in same position, under right nipple.

3rd.—Pulse 124 ; temperature $102\cdot2^{\circ}$; respiration 32. Had a restless night owing to cough ; sputa increased ; moist râles audible over right chest ; urine increased in quantity.

Measurements—left side, at nipple line, $18\frac{1}{2}$ inches ; right, $17\frac{3}{4}$ inches ; at xiphoid cartilage, left side, $18\frac{1}{4}$ inches ; right, $17\frac{1}{4}$ inches. Bulging of intercostal spaces, and fixity of side.

5th.—Pulse 124 ; temperature $102\cdot4^{\circ}$; respiration 32. Coughs and expectorates a good deal of frothy mucus. To have grs. 5 of quinine, grs. 8 of chloral hydrat., and ma. 20 of spts. chlorof. in solution every four hours.

26th.—The condition of the left side has improved considerably; anteriorly there is clearness on percussion from clavicle to nipple line, and good respiration is heard over this area; below this there is dulness with feeble distant respiration. The apex beat has returned to a point about two inches below and slightly internal to left nipple; behind there is fair resonance as low as the angle of the scapula, with fair breath-sounds; from angle of scapula down there is absolute dulness still, with feeble and distant respiration.

27th.—To stop quinine mixture and to have grs. 5 of citrate of quinine and iron three times a day.

Nov. 5th.—Cough very slight; some dulness behind, and subdued respiration, mingled with occasional râles; percussion note and respiration good over left chest in front, more râles audible here than posteriorly. Measurements, at nipple line, left side, 16 inches; right, 18 inches at xiphoid cartilage, left side, 15½ inches; right, 17 inches. Some falling in of side.

25th.—Had a slight rigor last evening, and another this morning; chest symptoms remain unaltered.

Dec. 8th.—Measurements—at nipple line, left side, 15½ inches; right, 17½ inches; at xiphoid cartilage, left side, 15 inches; right, 17 inches. Flattening and falling in of left side is quite perceptible in front; the left nipple is on a level an inch lower than right; anteriorly, percussion note and breathing good. Over the lower lobe behind there is some dulness (probably due to thickened pleura), and the respiratory murmur is rather feeble; anteriorly, on left side, at level of fourth rib, a friction sound is heard for the distance of about four inches from the left edge of the sternum. This sound at junction of cartilage with sternum partakes of the character of a pleuro-pericardial one—that is, coincides exactly neither with the respiratory movements nor the cardiac action, but is caused by the rubbing together of the external surfaces of both serous sacs. The patient has “thrown up” a good deal of flesh, and is looking very much better. He was discharged to-day, at his own request, with a caution to be very careful of himself, and an injunction to return if his breathing should get short again.

This case ran a comparatively speaking acute course, and terminated favourably by absorption of the fluid, but at the cost of some falling in of the side.

CASE IV.—*Left Sero-purulent Pleural Effusion; withdrawal of Fluid by Aspiration.*—Christopher C., aged twenty-five years, a Norwegian sailor, was admitted to West Derby Union Hospital, January 8th, 1878. Owing to his imperfect knowledge of the English language, I could gather no reliable history of the case. On admission he complained of cough, pain in left side, and there was dyspnoea; decubitus usually sinistral; he expectorated a small quantity of frothy mucus; in the erect position there

was dulness in front from about three inches below the left clavicle downwards, and behind from the spine of the scapula; the respiratory murmur was very feeble and distant, almost imperceptible, and there were no râles over the dull portion of the chest. When the patient lay on his back the upper portion of the left chest in front gave forth a high-pitched tympanitic percussion note, best marked for about three inches out from the sternum; in this region there was heard tubular breathing mingled with râles; the apex beat was situated at the ensiform cartilage; the heart-sounds were normal, and the pulse at this time between 80 and 90; the temperature was normal; over the right side the breath-sounds were good, mingled with some râles, and the percussion note was clear.

18th.—Pulse 84; temperature 98.6°. Left side of face was slightly swollen, which he said was caused by the coughing, and his breathing was more embarrassed than usual. Under these circumstances I determined to "aspirate" the chest. Accordingly, I introduced a medium-sized needle between the sixth and seventh ribs, near their angles, making a valvular opening through the skin, drawing it up, so that when the needle was withdrawn the external opening should not correspond with the internal; 41 ozs. of greenish yellow semi-purulent fluid were removed.* The breathing was considerably relieved by the operation, and he expressed himself as being better. The left side of the chest was now clear on percussion, as compared with what it was before, and tubular breathing, mingled with vesicular râles, was heard where before there was but the most distant respiration. I ordered 5-grain doses of quinine with a little solution of hydrochlorate of morphia every four hours, and increased his allowance of brandy from 3 to 6 ozs. Three hours after the operation his pulse was 84, steady and strong, and he expressed himself as much easier.

19th.—Had a good night; says he feels better, and does not cough much; left side of face still rather swollen; expectoration lessened since yesterday; anteriorly the upper portion of left chest is tympanitic, and the percussion note more highly pitched than on right side, but not so much so as before the operation, and is now equally so whether the patient be in the horizontal or erect position; tubular breathing, with some vesicular murmur, heard in this area—behind there is a certain amount of dulness, but there is great improvement in this respect, except at the very lowest part of the thorax, where there is absolute absence of breath-sounds of any kind. In the other parts of left chest posteriorly there is fairly good respiration; apex beat still at ensiform cartilage; puncture made by aspirator needle seems to be quite healed—a small, red mark only indicating its position.

23rd.—The percussion note over the anterior superior portion of left

* A quantity of pus cells were seen in the fluid under the microscope.

side was found to-day to be more highly pitched and tympanitic in the erect than horizontal position, contrary to what was observed at first.

25th.—Pulse 94; temperature, 99.9°. Cough and expectoration troublesome during the last twenty-four hours; very little air enters the left lung, and over the lower half respiration cannot be heard at all.

30th.—Pulse 92. Cough still troublesome, and he spits a large quantity of frothy mucus; physical signs unaltered.

February 1st.—Medicine changed—5 grs. of citrate of iron and quinine, and 3ss. of syr. chloral, every four hours.

4th.—Pulse 116. Measurements of chest, left side at nipple line, 19½ inches; right, 19 inches; at xiphoid cartilage, left side, 18½ inches; right, 19 inches. Left side of chest dull posteriorly, from spine of scapula down, but not absolutely so; the upper anterior portion does not give forth so tympanitic a note as was observed on other occasions; respiration over left chest rather feeble, with slight tubular breathing, especially in anterior superior portion; heart's apex is situated under false ribs on left side; he complains mostly of cough, and still expectorates a good deal of frothy mucus; there are no symptoms of hectic, and he continues to be well nourished.

6th.—Pulse 100; temperature 99.6°. Sweated a little last night (about 11 p.m.); coughing brings out a perspiration; expectoration more profuse, and more of a purulent character; no rigors.

7th.—Pulse 108; temperature 100°. A very feeble impulse, as if communicated from the heart, was perceived on applying the stethoscope over the angles of the eighth and ninth ribs on left side—it was confined to a limited area. This persisted for only a couple of days.

9th.—Pulse 104; temperature 99.5°. Gets up a little every afternoon; is getting stronger.

13th.—Pulse 110; temperature 99.9°. Vomiting his food since the previous evening; cough better; expectoration ceased; some falling in of left side.

March 14th.—Measurements of chest, left side, round nipple line, 17½ inches; right, 18½ inches; at xiphoid cartilage, left side, 17 inches; right, 18 inches; slight dulness below left clavicle; respiration in this position feeble and rather suspicious. From this on, during the remainder of his stay in hospital, he improved greatly in every respect, and was discharged towards the end of April to return to his native land.

The first case seems to corroborate an observation of Paul,* to the effect that "if the fluid readily coagulate after it is drawn off, it is not likely to accumulate again, and, if it does, it will be to such a small extent as to be soon absorbed." In this case it was very

* De la Thoracentèse, comme méthode de traitement de la Pleurésie Aigue. Bull. Gen. de Thérap. T. XXXI, 83.

interesting to observe, as the fluid ran away, the re-expansion of the lung, as shown by the occurrence of moist vesicular râles, and the gradual recession of the heart's apex.

In Case II., the opening by which the matter found its way out I opine to have been situated in some one of the larger bronchi, at the root of the lung, as the absence of signs of breaking down of lung structure and of pneumo-thorax negative the supposition of direct rupture into and discharge through the pulmonary tissue. Moreover, the opening, I think, must have been valvular, or of such a nature as to admit of the free exit of the fluid, while, at the same time, effectually to prevent the entrance of air into the pleural cavity.

It may be argued that the circumscribed area giving forth a high-pitched tympanitic percussion note, observed in Cases II. and IV., was owing to the supervention of pneumothorax; but the very limitation of these areas to the upper and anterior parts of the lungs, the fact that the note on percussion had not the hollow, empty barrel-like tone of a chest filled with air, I think negatives this opinion. True, we had the "dulness of sound and absence of respiration inferiorly, and extending upwards as far as the liquid effusion," as described by Stokes;* but in Case IV., at least, the absolute dulness and absence of respiration was confined to the very lowest part of the chest, and between this and the area of abnormal clearness there was lung tissue giving forth a fairly clear percussion note and fair respiration. Moreover, in both there was an entire absence of the "sound of fluctuation on percussion," "the metallic tinkling," and of the "metallic respiration, voice, and cough." This sign I am inclined to ascribe, in both cases, and most certainly so in Case IV., to compression of the lower parts of the lung, by adhesions and fluid, thus causing abnormal distension of the air-vesicles of the upper portions of the lung—in fact, a true acute form of compensative emphysema. The existence of a pleuro-pericardial friction sound was distinctly made out in Cases II. and III. This sound is readily recognised after a careful examination, but at first is calculated to mislead the observer. The situation of it is along the margins of the cardiac dulness, either on the right or left side, according to the pleura affected. Its character is peculiar; it neither corresponds with the respiratory movements, nor is it synchronous with the heart's action, but is composed of a mixture of both. It can readily be proved not to be pleuritic by asking the patient to stop breathing, when it ceases altogether. I have frequently found adhesions of the pleura to the pericardium at *post mortem* examinations, and I am inclined to think that the existence of a pleuro-pericardial friction sound is often not recognised, or its true nature mistaken during life, especially as some physicians, in investigating such cases, are satisfied with an examination of the posterior

* Diseases of the Chest. P. 532. 1837.

parts of the chest and the apex, at least as far as the use of the stethoscope is concerned.

The occurrence in Case IV. of a circumscribed and feeble impulse at the angles of the eighth and ninth ribs, I am at a loss to satisfactorily account for, but suppose it was caused by the heart's impulse being conducted through a collection of fluid confined and isolated by adhesions.

At a recent meeting of the Liverpool Medical Institution, Dr. Williams exhibited a cannula (which is figured and described in the May number of this Journal) for tapping the chest in cases of empyema, and leaving *in situ*, to admit of the fluid draining off. It is an ingenious little instrument, consisting of a cannula with a metallic shield and valve, acting by means of a spiral wire spring. It seems very nice in theory; but I fear, when put to the test of practice, will prove of little or no value—for (as was remarked at the above-mentioned meeting by a member) the fact of the valve being metal is likely to prevent the accurate coaptation of the surfaces of this with the shield, and thus to allow the entrance of air. It was also suggested that the ends for which the instrument were intended would be much better attained by the valve being made of India-rubber or some other yielding material. Now, even admitting that the valve be so accurately fitted as to prevent the entrance of air, and favour the exit of fluid during expiratory efforts, it appears to me that the whole benefit to be derived from the use of the instrument would be frustrated by the intervention of a small piece of lymph—a by no means improbable accident.

ERGOTINE IN NEURALGIA.

DISSOLVE from $2\frac{1}{2}$ to 3 grains of ergotine in glycerine or distilled water, and inject hypodermically. There is a burning sensation, more or less intense, which disappears within half an hour, if the puncture is covered with compresses dipped in cold water. Save in very rare cases, it is followed by neither abscess nor erysipelas. One injection, or at the most two, will, in the majority of cases, banish the neuralgic pain; with the view, however, of preventing relapses, as many as six injections may be given. In *tic douloureux* the results have been most favourable, while in *sciatica* they have often failed.—*L'Union Médicale*.

S. W.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, M.D., F.K.Q.C.P.

VITAL STATISTICS

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, May 18, 1878.

Towns	Population in 1871	Births Registered	Deaths Registered	DEATHS FROM ZYMOTIC DISEASES							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea	
Dublin, -	314,666	753	804	71	9	5	3	42	24	10	33·2
Belfast, -	182,082	619	414	4	4	7	—	2	15	14	29·5
Cork, -	91,965	202	187	—	1	—	—	2	8	3	26·3
Limerick, -	44,209	119	96	1	—	2	—	—	6	4	28·3
Derry, -	30,884	80	60	—	—	1	—	—	—	2	25·5
Waterford, -	30,626	73	74	—	1	—	—	5	—	1	31·5
Galway, -	19,692	53	27	—	—	—	—	1	1	—	17·8
Sligo, -	17,285	46	27	1	—	—	—	2	—	—	20·3

Remarks.

A very high death-rate prevailed in Dublin and Waterford; a high death-rate in Belfast, Limerick, Cork, and Derry. In Sligo and Galway the mortality was low. In London the death-rate was 21·8 per 1,000 of the population annually, in Edinburgh 23·0, and in Glasgow 24·7. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the rate of mortality in Dublin was 31·9 per 1,000, while it was as high as 34·5 per 1,000 within the municipal boundary. The registered deaths exceeded the registered births by 51. Zymotics were very fatal—they caused 194 deaths, compared with 127, the average number in the corresponding period of the previous ten years. Small-pox and whooping-cough were very prevalent and fatal. At the close of the four weeks 270 cases of small-pox were under treatment in the Dublin hospitals (including the temporary hospitals in connexion with the Union Workhouses). The deaths from the disease were 30 more than in the preceding four weeks. Of the 24 deaths from fever, 5 were caused by typhus, 16 by typhoid, and 3 by

continued fever of undetermined type. Fatal cases of small-pox were reported from Belfast, Limerick, and Sligo. This disease caused 219 deaths in London, compared with 241 in the preceding period. In Dublin respiratory affections were assigned as the cause of death in 156 instances (average of previous ten years = 119·3). These deaths included 109 from bronchitis (average = 86·0), and 32 from pneumonia (average = 18·7). To metria and child-birth 12 deaths were ascribed, of which 6 were registered in the week ending April 27.

METEOROLOGY.

Abstract of Observations made at Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of May, 1878.

Mean Height of Barometer,	-	-	-	29·719 inches.
Maximal Height of Barometer (on 29th at 9 p.m.),	-	-	-	30·242 „
Minimal Height of Barometer (on 15th at 9 a.m.),	-	-	-	29·093 „
Mean Dry-bulb Temperature,	-	-	-	52·9°
Mean Wet-bulb Temperature,	-	-	-	49·6°
Mean Dew-point Temperature,	-	-	-	46·4°
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·315 inch.
Mean Humidity,	-	-	-	78·5 per cent.
Highest Temperature in Shade (on 17th),	-	-	-	65·9°
Lowest Temperature in Shade (on 21st),	-	-	-	39·9°
Lowest Temperature on Grass (Radiation) (on 22nd),	-	-	-	35·5°
Mean Amount of Cloud,	-	-	-	60·2 per cent.
Rainfall (on 23 days),	-	-	-	4·540 inches.
General Direction of Wind,	-	-	-	W. and S.W.

Remarks.

Exceedingly changeable weather and an unusually persistent and heavy rainfall characterised this month. Numerous areas of low barometrical pressure crossed the British Islands or skirted our Atlantic coasts during the first three weeks. In Dublin ·718 inch of rain fell on the 6th in one of these depressions, while 1·220 inches were registered on the 10th. From this day to the 27th inclusive rain fell daily, chiefly in the form of heavy showers of rain and hail. The week ending Saturday, the 18th, was comparatively warm, owing to the prevalence of strong S.W. winds, but, after a fresh westerly gale and drenching showers on the 19th, a cold period set in, so that even the sheltered thermometer fell to 39·9° on the night of the 20th. In Ireland the weather underwent a decided change for the better on the 27th, from which day no rain fell in Dublin. Light northerly airs and bright, warm sunshine took the place of squalls and showers, and summer seemed at last to have arrived. High winds or gales were noted on the 8th, 14th, 16th,

19th, and 22nd. Hail fell on the 18th, 19th, 20th, and 26th. Thunder was heard on the 18th. A paraselene was seen at 9 p.m. of the 14th. The evening of the 1st and the morning of the 10th were foggy. So heavy a rainfall has not occurred in May since 1869, when 5.414 inches were registered, of which 3.059 inches fell in one week.

PERISCOPE.

Edited by G. F. DUFFEY, M.D., F.K.Q.C.P.

NITRITE OF AMYL IN TINNITUS AURIUM.

DR. MICHAEL (of Hamburg) has published a *résumé* of 27 cases of tinnitus aurium treated by him with nitrite of amyl. In 19 of these he has obtained decided success. Two to five drops should be inhaled at a time. The inhalation was continued while the usual symptoms lasted—redness of the face, injection of the vessels of the eye—and stopped when vertigo appeared. With all the patients who were benefited, the tinnitus increased during the period of inhalation. With the disappearance of the redness from the face it diminished and became less than it was before the inhalation. In some cases the improvement only lasted an hour, in others several weeks, but generally it continued from two to ten days. The effect of a second inhalation was more marked than that of the first, provided that it was not repeated too soon. There should be an interval of two days at least. Of course, inhalations would not be applicable in cases of acute aural catarrh, nor where the tinnitus was of mechanical origin.—*L'Union Médicale*.

S. W.

INTRA-VENOUS INJECTION OF MILK.

DR. GAILLARD THOMAS of New York, from his experience of its effects in three cases, strongly recommends intra-venous injection of milk as a substitute for the transfusion of blood in cases appearing to demand such a procedure. He states that the transfusion of blood is an operation the theoretical advantages of which all admit; but that it is attended with inherent difficulties and dangers, almost all of which arise from the tendency to coagulation which characterises the fluid employed. In the milk of the cow we possess a vital animal fluid which fulfils the indications of increasing the amount and improving the quality of the blood, and which has not the disadvantages above mentioned. [Dr. Thomas does not allude to the use of defibrinated blood for the purpose of transfusion, as successfully employed by Dr Robert M'Donnell—*vide* Journal, May, 1878, p. 429.—ED. PERISCOPE]. Although chemically inferior to

blood, milk is more allied to chyle—the material of which nature makes blood—than any other fluid with which we are acquainted. The cases in which Dr. Gaillard Thomas employed lacteal intra-venous injection were those of three patients upon whom the operation of ovariectomy had been performed. The idea was suggested to his mind by the recollection of some cases of cholera in 1850, successfully treated by Dr. Hodder of Toronto by intra-venous injection of milk; and by the results observed from similar treatment in a patient suffering from tubercular disease, under the care of Dr. Howe, dying from starvation in consequence of an inability to retain nutritious material by either stomach or bowels. Full details are given in the paper of the cases in which milk was injected. In the first case the patient was raised from a condition of imminent death by the injection of eight and a-half ounces of milk, taken from the cow the moment the fluid was required, into the median basilic vein. The second case was one in which life was marvellously prolonged for six days by five intra-venous injections of milk, death resulting from localised gangrene of the intestine. In the last case the patient was bleeding to death both before and during the injection, and bled steadily after it. The case simply corroborates what has been fully proved, that milk injected into the circulation is innocuous. Dr. Gaillard Thomas sums up his valuable essay with a series of propositions, an abstract of which we append:—1. The injection of milk into the circulation in place of blood is a perfectly feasible, safe, and legitimate procedure, which enables us to avoid most of the difficulties and dangers of the latter operation. 2. In this procedure none but milk removed from a healthy cow within a few minutes of the injection should be employed. Decomposed milk is poisonous, and should no more be used than decomposed blood. 3. A glass funnel, with a rubber tube attached to it, ending in a very small cannula, is better, safer, and more attainable than a more elaborate apparatus, which is apt, in spite of all precautions, to admit air to the circulation. 4. The intra-venous injection of milk is infinitely easier than the transfusion of blood. Dr. Thomas would not limit lacteal injections to cases prostrated by hæmorrhage, but would employ it in disorders which greatly depreciate the blood, as Asiatic cholera, pernicious anæmia, typhoid fever, &c., and as a substitute for diseased blood in certain affections which immediately call for the free use of the lancet, as puerperal convulsions, &c. Not more than eight ounces of milk should be injected at one operation (*N. Y. Med. Journal*, May). In the *N. Y. Med. Record* (May 11, 1878) Dr. Prout cites the results obtained by Dr. N. Wulfsberg in the laboratory from his numerous experiments on animals, as confirming Dr. Thomas's *practical* suggestions (v. *Nachricht*, v. d. Königl. Gesellsch. d. Wiesensch. u. d. G. A. Univ. zu Göttingen, No. 3, Feb. 20, 1878). But Dr. Wulfsberg holds that as relatively small quantities only can be safely injected, as these induce only a very

transitory relative increase of the colourless blood-corpuscles—and as on the other hand the injection of large quantities leads to the formation of emboli in the lungs, which are never caused by the transfusion of blood—and as, finally, we can, when it is at all possible, re-excite the heart's action by harmless means—we cannot rely upon intra-venous injections of milk as the last resort. He thinks that these cannot take the place of blood transfusions.

CONTINUOUS CURRENTS IN THE TREATMENT OF SCIATICA.

DR. EBRARD, Chief Physician to the General Hospital of Nîmes, referring to an article in *The Practitioner* of December, 1877, on the superiority of continuous to induction currents in the treatment of sciatica, describes a very simple mode of generating electricity, which he asserts has seldom failed, at least to relieve the pain. A common smoothing iron is made hot enough to vaporise vinegar, it is covered with a woollen cloth that has been soaked in vinegar, and applied to the painful part. This operation is repeated two or three times in the day. The pain usually disappears at the end of twenty-four hours. It is only a household electric pile.—*Revue Médicale*.

S. W.

CHRY SOPHANIC ACID OINTMENT IN PSORIASIS.

PROFESSOR NEUMANN, the eminent dermatologist of Vienna, endorses (*Wiener Mediz. Presse*, Nos. 14, 16, 1878) Mr. Balmano Squire's treatment of psoriasis by an ointment of chrysophanic acid, as first communicated by Mr. Squire in this country at the latter end of 1876. After giving due credit to Mr. Squire, and to the other English observers who followed him in this research, the Professor winds up an able paper with the following summary of results:—1. That chrysophanic acid, derived from goa-powder, is an excellent remedy for herpes tonsurans, pityriasis versicolor, and psoriasis vulgaris. 2. Psoriasis, in its earlier stages, begins to disappear after a few applications of the drug, and in a far more unequivocal manner than under any other remedy that has ever yet been used against psoriasis. 3. Even inveterate forms of the disease can be abolished by means of chrysophanic acid, and it is quite the exception to find them oppose any protracted resistance to it. 4. Chrysophanic acid is a perfectly painless application to the diseased skin. The morbid phenomena occasioned by it on the healthy skin result apparently from the admixture of resinous matter with the acid. 5. As a result of this mode of treatment, psoriasis belongs no more to those skin diseases which, in so high a degree, are a source of misery to the patient, and it has now become an easy matter to cure relapses. Every patient with psoriasis that he has as yet treated by this means, gives the palm, without hesitation, to this method of treatment in preference to all others. In any case this, at the

least, is emphatically true—namely, that the therapeutics of skin diseases have, for the last ten years, been enriched by but few remedies which have been crowned by so eminent a success as the one in question. 6. There are other skin diseases, also, which are curable by chrysophanic acid; but upon these he will not report until he has accumulated more material. 7. Lastly, Professor Neumann expresses a hope that this method, which he was the first to promulgate in his country, may be examined by other observers, and he does not doubt but that it will soon permanently assume its due rank amongst the treasures of therapeutics.

PREVENTION OF PITTING AFTER SMALL-POX.

M. BERNARD, during a severe epidemic of small-pox, found the following means successful in many cases. All the papules or vesicles should be pricked with a needle from the very beginning of their development, and frequently bathed with tepid water. The punctures are to be frequently repeated with the view of keeping open the little wounds and thus allowing the variolous matter to escape as it is formed. It is consequently a work of patience, such as devoted friends alone could perform, but the results, M. Bernard claims, reward the trouble.—*Revue Médicale*.
S. W.

NITRITE OF AMYL IN CHLOROFORM ACCIDENTS.

L'Union Médicale reports a case in which the timely administration of nitrite of amyl seems to have restored the heart's action. A patient had inhaled 2 drachms of chloroform, and the stage of anæsthesia was beginning when suddenly the pulse stopped, the lips were covered with foam, and the face assumed a cadaveric aspect. At once the chloroform was removed, water was dashed on the face, the tongue pulled forward, and artificial inspiration tried. No favourable result following, a small quantity of nitrite of amyl was poured on a handkerchief and applied to the nostrils. After the lapse of about ten seconds the face was observed to become red, and the pulse was felt, then respiration was re-established, and after a short rest the operation was successfully proceeded with. A somewhat similar case is recorded in the *British Medical Journal* of 18th August, 1877.

S. W.

THE DUBLIN JOURNAL

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MEDICAL SCIENCE.

AUGUST 1, 1878.

PART I.

ORIGINAL COMMUNICATIONS.

ART. III.—*The Present State of our Knowledge with regard to the Intimate Nature of Infection and Contagion, and its Relation to the Prevention and Cure of Zymotic Diseases.** By THOMAS WRIGLEY GRIMSHAW, M.A., M.D. (Dublin); Fellow and Censor of the King and Queen's College of Physicians; Physician to Dr. Steevens' Hospital; Consulting Physician to Cork-street Fever Hospital; Lecturer on Medicine in Steevens' Hospital; Examiner in Medicine to the Queen's University in Ireland.

LECTURE II.

CONTAGIUM OF SPECIFIC FEVERS.

In considering the nature of the contagium of specific diseases, we have again to face the question of spontaneous generation; and just as this question bears upon the production of septic poison, so it bears also upon specific contagium. Thus, according to one view, contagium may originate *de novo*; according to the other, it can only be derived from previously established disease or the germs thereof. Those who disbelieve in spontaneous generation believe in what has been conveniently termed "contagium vivum," which, strictly interpreted, implies "seed of disease," and therefore assume the pre-existence of a parent. "Contagium vivum" and septic

* Being the second of two lectures delivered before the King and Queen's College of Physicians on the 4th and 11th of March, 1878.

poison are not, in any sense, convertible terms, although many have used them as synonyms, and hence many mistakes. I have shown that "septic poison" is not a living, but the product of a living, organism, is incapable of self-multiplication, and resembles the poisonous principles of vegetables. On the other hand, contagium, whether producible *de novo*, as the advocates of spontaneous generation have it, or the descendant of a remote ancestry, as their opponents hold, presents all the properties of living organisms. I have already assigned my reason for considering that "spontaneous generation" has not yet been proved; and, therefore, it is unnecessary to discuss the question again in connexion with specific contagium. Although the origin *de novo* of specific diseases has not been proved, yet it is affirmed by many that contagium can be produced and cultivated outside living bodies, and many attempts of a very substantial and ingenious nature have been made to prove the essential connexion of certain specific forms of zymotic diseases with organisms which may be cultivated outside the bodies of living animals. To the consideration of this question I shall now address myself.

There is but one contagious febrile affection to which human beings are liable which affords a fair and justifiable field for experiment, and that disease is cow-pock, which must be considered as a variety of small-pox, and its contagium as small-pox contagium, modified by cultivation, just as the species of *Brassica*, especially *Brassica oleracea* have been modified into our various table vegetables—cabbages, kale, greens, cauliflowers, broccoli, &c. That a "contagium vivum" should be so modified is not surprising, when we consider the ease with which the gardener modifies vegetables. The surprising fact is that, up to the present, the contagium of small-pox is the only one which we have been able to modify in a *certain* and favourable manner. It thus happens that not only nearly all our exact knowledge of the intimate nature of specific contagium has been inferred from the study of small-pox and vaccinia, but, also, that many of the misconceptions which still prevail, relative to the physical conditions of contagion, have been inferred from superficial observations upon these diseases. Our familiarity with vaccinia and variola being so great, it was natural that the first attempt to investigate the intimate nature of contagion should be directed to these diseases. Accordingly, we find that, so long ago as the year 1863, Dr. Beale* discovered, in

* Quarterly Journal of Microscopical Science. April, 1864.

perfectly clear vaccine lymph, certain little particles, and these little bodies Dr. Beale terms (in accordance with the views which he holds concerning the simplest form of life) "germinal matter," or "bioplasm." About the same time Dr. Chauveau,^a of Lyons, commenced an independent series of observations upon small-pox and vaccination. His first observations were directed to the determination of the question as to whether the contagion of these affections was solid, fluid, or gaseous, or capable of being brought into these states. The result of Chauveau's experiments was to prove that the contagium of vaccinia was insoluble, and that water brought in contact with vaccine lymph did not become impregnated with the virus of the lymph. He also experimented with fluid from small-pox and from sheep-pox, the result in every case being similar. Dr. Sanderson^b has repeated Chauveau's experiment with additional precautions, and obtained exactly similar results. Thus it has been proved that contagium is *particulate*. It has also been proved that the particles are extremely minute—for vaccine matter may be diluted ten times without losing its power, but increased dilutions diminish the certainty of its action. The virus of sheep-pox may be diluted by 10,000 times its bulk of water and still produce its effects. Inoculations with diluted lymph, if they take at all, produce quite as typical results as operations performed with undiluted lymph, showing that the introduction of the contagion in the smallest quantity will produce the characteristic effects. These observations have been further confirmed by experiments upon other diseases of animals. Contagium, therefore, appears to be neither soluble nor volatile, its apparent solubility depending upon the minuteness of its particles, which can be easily diffused through a fluid, and will remain suspended for a considerable time, just like the impurities which I mentioned as existing in fluids, and only capable of demonstration by an electric beam. In the same manner contagium may be suspended in the air, just as the motes which are seen floating in the sunbeam. Tyndall's experiments show how bodies which are neither volatile nor soluble may be so suspended in air or fluid as to give the idea of volatility or solubility, and so solved the difficulty which existed

^a *Vaccine et Variole, nouvelle étude expérimentale sur la question de l'identité de ces deux affections.* Paris, 1865. *Détermination expérimentale des éléments qui constituent le principe actif de la sérosité vaccinale virulente.* Comptes Rendus, LXVIII. 1868.

^b Twelfth Report of the Medical Officer of the Privy Council. 1869.

in accounting for the communication of infection through the atmosphere.

Accepting it as proved that contagium is "particulate," our next inquiry is—What is the nature of the particles? Are they living or dead? And, if living, are they animal or vegetable?

The evidence that the particles are living rests upon this—that they conduct themselves as only living organisms do—namely, when placed on a suitable soil, they grow and have the power of self-multiplication to an indefinite degree. In this they differ from the septic poison, and from all other poisons, whether of organic or inorganic origin. It is easier to prove the vitality of the particles of contagion than to decide to which of the two great kingdoms of living organisms they belong. There is no crucial test yet known which can be so applied as to determine whether one of the lowest organisms is animal or vegetable in its nature. As the minute beings, known in the early days of microscopy as "infusoria," were found to be endowed with the power of motion, it was assumed that all such moving organisms were minute animals, but it is now known that many vegetables are endowed with the power of motion, and even devour animals; therefore, this distinction between plants and animals is no longer tenable. The chief test between animal and vegetable growths depends upon the nature of their reproduction and development; and, applying this test, it is found that the organisms associated with the propagation of contagium are of a vegetable nature and probably belong to either the class *fungi* or *algæ*. Many contagious cutaneous diseases are now known to depend upon the growth of fungi; such diseases, however, are but slightly associated with febrile conditions, or acute destructive tissue changes, such as accompany the growth of the organisms connected with contagious fevers.

The investigation of this subject is one surrounded with the greatest difficulties, and requiring most careful observation. When I state that Dr. Klein,^a who is one of the most accurate observers of the day, made the mistake of thinking he had discovered a fungus growth in connexion with sheep-pox, which he afterwards ascertained was nothing more than albumen, altered by the process of preparing the specimen for microscopic inspection,^b I think I say

^a Report of the Medical Officer of the Privy Council and Local Government Board. New Series. No. III. 1874.

^b Report of the Medical Officer of the Privy Council and Local Government Board. New Series. No. VIII. 1876.

enough to show the care required in founding hypotheses even on observed facts. I shall now, as briefly as I can, refer to the present state of knowledge with regard to the low organisms which accompany the development of contagion. The first attempts to connect the development of fungi with any specific form of zymotic diseases seem to have been by Dr. Cowdell, of Dorchester, who suggested the idea in 1848. In 1849, Drs. Brittan and Swayne, of Bristol,^a believed that they had discovered vegetable organisms which bore some relation to cholera. I think the first substantial attempt to connect the origin of any specific febrile zymotic with a fungoid growth, was made by Dr. Salisbury, of Newark, Ohio, in 1862,^b who suggested that the origin of camp measles was connected, by the contact of those attacked, with damp straw upon which certain fungi (*puccinia graminis*) had been developed. Following up his inquiry, Dr. Salisbury discovered that he could by inoculation with the spores of those fungi produce a disease very similar to, if not identical with, measles—and which conferred immunity from other attacks of measles. Although Dr. Salisbury has not produced any evidence of the growth of these fungi in the human body, he has given very substantial proof of their power to produce measles; but he has not proved that the contagium of measles is identical with the fungus or its spores produced on damp straw.^c Dr. Salisbury's experiments do not seem to have attracted that notice which they deserve; they have been passed by, by some, as observations not yet confirmed; but I am not aware that any successful attempt has been made to disprove Dr. Salisbury's conclusions. Dr. Tilbury Fox evidently accepts the facts published by Dr. Salisbury.^d

The most systematic attempt of the kind was made by Dr. Hallier,^e of Jena, during the cholera epidemic of 1866–67. He believed he had proved that the discharges and vomit from cholera patients contained certain fungi and their germs; these he cultivated outside the body, and went so far as to identify them with a fungus met with on rice grown in India, where cholera seems to take its origin. Hallier's explanation of the

^a London Medical Gazette, and Lancet.

^b The American Journal of the Medical Sciences. July, 1862, and October, 1862.

^c The Action of Vegetable Fungi in the Production of Measles and Allied Diseases. See also Dr. Tilbury Fox in Journal of Social Science. Vol. I. No. III.

^d Loc. cit.

^e Das Cholera Contagium: Leipzig, 1867. See also Dr. Buchanan in Ninth Report of the Medical Officer of the Privy Council. 1867.

presence of these fungi seems to be that these bodies (urocystis) were incapable of growth in northern climates, on account of the low temperature, but that the bowels of infected persons provide the necessary climate. It has, however, since been shown by Drs. Cunningham and Lewis* that the organisms which Hallier connected with cholera do not exist in connexion with rice, and that Hallier's fungi have no necessary connexion with cholera. Other fungoid bodies have been met with in cholera discharges, but, as yet, none can be proved to be the promoting cause of that disease. With regard to small-pox, Dr. Keber, of Dantzic, 1868, discovered organisms in the lymph of variola and vaccinia which he considers to be either the generators or the carriers of the contagion of the disease. These bodies are now known as micrococci. Dr. Sanderson observed bodies in vaccine lymph, in 1870, which he called microzymes. Cohn found that these organisms were common to both vaccine and variolous lymph; and besides these other circular bodies which he considers to be cells, and frequently united in pairs like the figure 8, which, on keeping for a time, developed into chains and necklaces, then again aggregated into colonies or clumps, and became united by a mucoid substance into zooglae.

Weigert, of Breslau, found in the lymphatic vessels of persons who had died from small-pox masses of micrococci; these were only found on the sixth or seventh day. After that the bodies became indistinct; and as few die before the sixth or seventh day of small-pox, it was impossible to follow the life-history of these bodies in the human subject, or to prove their necessary connexion with small-pox. However, as sheep-pox, or *variola ovina*, is so exactly similar to human small-pox, Dr. Klein undertook to follow the question up by observations upon that disease. Unfortunately Dr. Klein fell into a reasonable error with regard to the nature of the bodies of which he published an account in 1874, and in 1876 he acknowledged his mistake; nevertheless, the presence of the micrococci described by Weigert, and again by Dr. Klein, has not been gainsaid, and must be taken as an established fact. I shall be mistaken if Dr. Klein does not pursue his inquiries upon this question to a successful issue. In the case of the splenic fever of cattle, now known to be capable of attacking man, certain bodies

* Sixth Annual Report of the Sanitary Commissioner with the Government of India: Calcutta, 1870. Also Report of the Microscopical and Physiological Researches into the Nature of the Agent or Agents producing Cholera: Calcutta, 1872. Report on Cholera: Calcutta, 1874.

have been discovered which are proved to have a necessary connexion with the disease.^a They are found in the blood, and the blood of an infected animal will communicate the disease to a healthy animal. These bodies are in the form of rods, capable of growth, and produce spores in their interior, which are set free by the breaking up of the wall of the rod-like bodies. The presence of these bodies is necessary to the communication of the fever by infection. While the rod-like bodies easily lose their vitality, the spores produced by them are capable of resisting boiling temperatures, and will not alter even in the presence of oxygen under high pressure.^b Thus, in splenic fever, the question of the necessary existence of specific organisms is settled beyond a doubt. In cases of diphtheria and erysipelas micrococci are found in all infected parts, but it has not been proved that these bodies are essentially connected with these diseases. In relapsing fever bodies called spirillæ^c have been discovered, which seem to have an essential connexion with this disease. These bodies are little spiral filaments, which are found only during a paroxysm of the fever, and always absent during an apyrexial period.

In all those diseases in which micrococci have been demonstrated as occurring, certain conditions, known as ulcerative endocarditis, have been discovered in the living membrane of the heart. This condition has been met with in small-pox, scarlatina, measles, diphtheria, erysipelas, and pyæmia. A close examination of these endocardial affections shows them to consist of colonies of micrococci. These in many cases become broken up and are disseminated through the body, and become the foci of little nodules. They have themselves been derived from the site of the original infection, and in their turn become infecting agents. Now, although all these various organisms have been found in connexion with specific infective diseases, yet it still remains an open question whether any of them are particles of contagium. In the cases of splenic fever and relapsing fever, the organisms appear to have the necessary connexion with the diseased conditions, but such connexion is wanting in the other affections referred to. Dr. Beale,^d some five years ago, rejected all the vegetable theories of contagious

^a See Dr. Sanderson's Lectures. Loc. Cit.

^b Pasteur and Joubert. Bulletin de L'Académie de Médecine. 1877.

^c Obermeier—Berlin. Klin. Wochenschrift, 1873. See also Sanderson—Report of Medical Officer of Privy Council and Local Government Board. New Series. No. III.

^d Disease Germs ; their Nature and Origin. 1872.

zymotics. The evidence then in their favour was not so strong as now, yet, nevertheless, Dr. Beale's views have not been controverted, and his idea of a living matter, which he terms "bioplasm," capable of modification into the various forms of specific contagion, commends itself at once as a view likely to reconcile many differences and be acceptable to practical as well as inductive physiologists, pathologists, and physicians.

CONCLUSIONS AS TO THE PRESENT STATE OF OUR KNOWLEDGE.

A.—With regard to fermentation—1. That certain kinds of fermentation, in which bacteria take part, are capable of developing a poison, called the septic poison, which produces specific effects when introduced into the circulatory system. 2. That the septic poison may be produced independent of the living body, or may be elaborated in wounds by the action of bacteria.

B.—With regard to spontaneous generation—1. That the spontaneous generation of living organisms has not yet been proved. 2. That spontaneous generation is not impossible. 3. That in the absence of proof or disproof of spontaneous generation, we must act as if such a process were possible.

C.—With regard to septic infection—1. That the septic poison produced by bacteria and their progeny, when introduced into the system, produces disintegration of the blood corpuscles, consequent coagulation of the blood, and thus stasis and capillary congestion. 2. That the effects of the septic poison are in direct proportion to the dose.

D.—With regard to the contagion of specific diseases—1. That the contagia of specific diseases are particulate and living. 2. That these contagia closely resemble vegetable organisms in their growth and development. 3. That up to the present the specific contagium of any disease has not been demonstrated. 4. That in several contagious diseases certain organisms have been found which are constantly related to those diseases, and must therefore be considered to be either the contagia of such diseases or the only carriers of such contagia.

PRACTICAL APPLICATION.

I shall now proceed to make some practical application of the knowledge which I have shown we possess upon this subject.

With reference to *septic infection*, assuming that it is true that the septic poison is the product of the growth of bacteria, it is quite evident that any agent which will kill the bacteria or their

germs before they have developed the poison will, as a matter of necessity, prevent the occurrence of septic infection. Now, I have shown that septic poison may be produced outside and at a distance from the body which it ultimately affects; and that, further, all the conditions favourable to the growth of bacteria, and therefore to the production of septic poison, exist in wounds and sores, and that the intestinal tract itself contains bacteria capable of producing septic poison in the neighbouring parts if the proper soil is provided. We at present know of no antidote to the septic poison, and our dealings with it, when once it enters the system, consist in maintaining the life of our patient until the effects of the poison have worn off, or combating the various secondary conditions which septic infection gives rise to. We may, however, prevent the entrance of the poison, or even prevent its formation, under certain circumstances. The greatest difficulty with which the surgeon has to contend is the septic infection of wounds. The results of the most carefully devised and beautifully executed operations have been frustrated by septic infection. I think I have shown conclusively that ordinary air contains, among many floating objects, the germs of the lowest forms of life, and among these bacteria and their germs. This being admitted, it follows that a wound exposed to the influence of ordinary air is at the same time exposed to the danger of becoming a field for the growth of bacteria; and if these bacteria settle upon the surfaces of the wound and there produce their venom, the patient will as certainly suffer as if the septic poison itself, produced from a putrid infusion, had been introduced into the wound. The avoidance of the introduction of matter known to be putrid, and therefore possibly containing septic poison, is a mere matter of scrupulous cleanliness, and the carrying out of such cleanliness is well known to be a source of great success in surgery. All putrid matters should, therefore, be removed far from the healthy, and, still more, from the sick; and in public institutions and hospitals should be destroyed by fire or powerful corrosive chemical agents. We cannot, however, apply corrosives or fire to our patients and their wounds, and, fortunately, here we have the means of preventing the formation of septic poison by the use of antiseptics. These antiseptics act, not by destroying the poison itself, but by destroying the agents which produce the poison. The poison has been shown (Dr. Anders) to be capable of withstanding the most powerful antiseptics.

When speaking of fermentation, I cited the case of putrefaction

as instance of fermentation. It is right here to state that some authorities have endeavoured to distinguish between fermentation and putrefaction, defining the former as changes connected with the growth of "torulæ" (yeast plants), and the latter as changes in connexion with "bacteria." Now this I consider quite an artificial and misleading distinction, and one which, if followed out, would lead to the giving of special names to a variety of processes almost identical with torulous fermentation. This attempt to distinguish between fermentation and putrefaction seems to have followed on the discovery that certain agents which control torulous fermentation do not control bacterial fermentation. It is with bacterial or septic fermentation that we have to deal when considering the question of antiseptics, which are agents fatal to the growth of "bacteria." The test of the power of an antiseptic is the amount of control it has in preventing the occurrence of septic fermentation in a cultivating fluid. Experiments carried out by Dr. Baxter,* published in 1875, have shown the relative antiseptic powers of different agents. Dr. Baxter's method of taking antiseptic power is as follows:—"A known portion of the agent under investigation was added to a liquid teeming with septic microzymes. A test solution, previously sterilised by heat, was then inoculated with a minute drop of the disinfected liquid. If it continued barren, the successful destruction of the septic germs is proved. In the event of their incomplete destruction, the test liquid was found crowded with their progeny." The result of Dr. Baxter's experiments was to prove that—

	Strength per cent. or more.	
Potassic permanganate	0.007	destroyed the reproductive power of microzymes.
Chlorine -	0.0008	
Sulphur dioxide -	0.123	
Carbolic acid -	1.	

The antiseptic action of the permanganate and chlorine is seriously impaired by the presence of albuminous compounds, whereas the action of sulphur dioxide and carbolic acid are scarcely, if at all, so affected. Hence in dealing with animal fluids, the two latter are the valuable agents, and the two former nearly useless.

Bucholtz found that antiseptic agents prevented the formation

* Report of the Medical Officer of the Privy Council and Local Government Board. New Series. No. VI. 1875.

of bacteria when used in the preparations set forth in the accompanying Table, which has been kindly furnished by Dr. Burdon Sanderson for the purpose of illustrating these lectures:—

Table showing the power certain agents have of preventing the development of or destroying the growth of Bacteria.

Arresting the Development of Bacteria.	Strength of Solution found necessary	Rendering existing Bacteria incapable of further Growth or Propagation.	Strength of Solution found necessary
Name of Disinfectant		Name of Disinfectant	
Corrosive Sublimate, -	One in 20,000	Chlorine, - -	One in 25,000
Thymol, - -	2,000	Iodine, - - -	5,000
Sodic Benzoate, - -	2,000	Bromine, - - -	3,333
Cressote, - - -	1,000	Sulphurous Acid, -	666
Carvol, - - -	1,000	Salicylic Acid, - -	312
Benzoic Acid, - -	1,000	Benzoic Acid, - -	250
Salicylic Acid, - -	666	Thymol, - - -	200
Eucalyptol, - - -	666	Carvol, - - -	200
Sodic Salicylate, - -	250	Cressote, - - -	100
Carbolic Acid, - -	200	Carbolic Acid, - -	25
Quinine, - - -	200	Alcohol, - - -	4
Alcohol, - - -	50		

An important paper on this subject was published in *The Dublin Medical Journal* for April, 1876, p. 321, by Edwin Lapper, licentiate of this College.

Acting upon information of this kind, Professor Lister, by the careful and assiduous applications of these scientific facts to practical surgery, has devised a method of treating wounds now known as "antiseptic surgery," or, as it may be fairly called, "Lister's method," for to him belongs the credit (in spite of arguments about priority of suggestion) of having really applied the science of antiseptics to practical surgery. I cannot enter upon the details of Lister's treatment of wounds, but it consists in taking measures to destroy as completely as possible all bacteria and their germs, before either they or their septic venom have established themselves in the wounds produced by operations and accidents. This

is accomplished by surrounding the patient with an antiseptic atmosphere, bathing the wounds with antiseptic fluids, and forming a screen of antiseptic material to prevent the access of microzymes to the wounded part. I am aware that antiseptic surgery is not always successful, and that it is stated that microzymes have been found behind Lister's antiseptic screens. I am also aware that very successful results have been obtained by other means than those adopted by Lister. Antiseptic surgery has been called a system merely of cleanliness; be it so, the dirt to be dealt with is dangerous, and moreover *living*. Lister has proved that he can with comparative ease destroy this dirt, and can show why it is dangerous, and that it is destroyed by depriving it of life. This is undoubtedly the most efficacious way of disposing of these pests of surgery, and thus destroying septic infection and its possible results—pyæmia and hospital gangrene. The experience of Continental surgeons has fully confirmed Lister's views and practice. So far the practical application of our knowledge with regard to septic fermentation and the production of the septic poison is found in antiseptic surgery. May not the physician also apply this knowledge to the prevention of septic infection from the ulcers of enteric fever, the sloughing sores of the throat in scarlatina or diphtheria, or the condition of skin in the advanced stage of small-pox? I believe he can, though perhaps to a more limited degree than the surgeon, yet the practice of the surgeon in this as in many other cases may serve as a useful guide to the physician.

We have now to consider the application of our knowledge to the prevention and cure of specific contagious zymotica. I cannot consider each disease of this class, but I shall endeavour to point out generally and in some cases particularly how these diseases are to be dealt with, and in doing this we must view the question from the following points:—

1. The modification of the nature of contagium.
2. The destruction of contagium—*a*. Without the body; *b*. Within the body.

3. To counteract the effects of contagium.

1. But little way has yet been made towards the modification of the nature of contagium. In fact, the only contagium which we have yet been able to modify is that of small-pox, and our power to modify that contagium has reached an amount of exactness and certainty which affords the strongest proof of the value of experimental pathology, and the greatest encouragement to follow up

those investigations (which are now becoming so common) into the nature of infectious diseases among animals, and their relation to human complaints. The results of vaccination are so well known, and the benefits it has conferred on mankind so extensive, that it is quite unnecessary for me to refer to them further.

2. The means at our disposal for the destruction of contagium are numerous and various. They differ so much in their mode of application, and the circumstances under which each may be used are so unlike that we are frequently unable effectually to apply any of them.

The agents termed disinfectants which are used for the destruction of contagium, must not be confounded with antiseptics, which prevent septic fermentation by the destruction of microzymes, &c. There is a strong *probability* that an antiseptic will prove a disinfectant, but that is all; it is not necessarily so, nor *vice versâ*. I have shown already that the power of some antiseptics is diminished by the presence of albuminous compounds, and as contagious particles are frequently, some say always, associated with albuminous substances, the power of these antiseptics must be thus diminished. Contagium within the system must of necessity be associated with albuminoid substances, and therefore possess additional protection against the action of antiseptics.

I shall now consider the action of disinfectants on contagium, and here again we must be chiefly guided by the results of Dr. Baxter's experiments. Dr. Baxter^a adopts as a definition of disinfectant "any agent capable of so modifying the contagium of a communicable disease, during its transit from a sick to a healthy individual, as to deprive it of its specific power of infecting the latter." It will be observed that this definition excludes the destruction of contagium within the body. The particular forms of contagium selected for experiment by Dr. Baxter were vaccine, the virus of infective inflammation, and the virus of glanders. The disinfectants tested were potassic permanganate, sulphur dioxide, chlorine, and carbolic acid, the same used in his experiments on septic fermentation; also exposure to heat. The results of the experiments prove that—

a. Carbolic acid, sulphur dioxide, potassic permanganate, and chlorine, are all endowed with disinfectant properties.

b. The effectual disinfectant operation of chlorine and potassic permanganate depends more on the nature of the medium in which

^a Loc. cit.

the contagious particles are contained than upon the nature of the particles themselves; thus, when the contagious particles are protected by the presence of organic compounds, or when agents capable of combining with chlorine or decomposing the permanganate are present, the powers of these disinfectants are so impaired that their action cannot be relied upon.

c. A virulent liquid cannot be regarded as certainly and completely disinfected by sulphur dioxide, unless it has been rendered permanently and strongly acid.

d. No liquid can be considered disinfected by carbolic acid, unless it contain 2 per cent. by weight of the acid.

e. "When disinfectants are mixed with a liquid, it is important to be sure that they are thoroughly incorporated with it; that no solid matters capable of shielding contagium from immediate contact with its destroyer be overlooked.

f. "Aerial disinfection, as commonly practised in the sick room, is either useless or positively objectionable, owing to the false sense of security it is calculated to produce. To make the air of a room smell strongly of carbolic acid, by scattering carbolic powder about the floor, or of chlorine, by placing a tray of chloride of lime in a corner, is, so far as the destruction of specific contagia is concerned, an utterly futile proceeding. When aerial disinfection is resorted to, the probability that the virulent particles are shielded by an envelope of dried albuminous matter should always be held before the mind. Chlorine and sulphur dioxide are, both of them, suitable agents for the purpose; the latter seems to be the more effectual of the two. The use of carbolic vapour should be abandoned, owing to the relative feebleness and uncertainty of its action.

g. "Dry heat, when it can be applied, is probably the most efficient of all disinfectants. But, in the first place, we must be sure that the desired temperature is actually reached by every particle of matter included in the heated space; secondly, length of exposure and degree of heat should be regarded as mutually compensatory factors within certain limits. The above statements are not so discouraging as they may appear at the first glance to our reliance upon artificial disinfection. If we believe that all contagia are generated, like those of small-pox and scarlet fever, in the infected organism, and there only, the outlook is a hopeful one. We might even anticipate an approach to the *perfect* fulfilment of the work of disinfection, by subjecting all matters immediately after their removal from the affected person, and before any dilution or

admixture, to the full influence of one or other among the destructive agencies at our command. On the other hand, if the contagium of any disease is capable of being generated *de novo* outside the body (pythogenic origin of enteric fever, typhus created by overcrowding), such contagium can hardly be eradicated by any method of artificial disinfection. For cases of the latter kind the opening words of the memorandum previously referred to furnish the only solution—namely, it is to cleanliness, ventilation, and drainage, and the use of perfectly pure drinking water, that populations ought mainly to look for safety against nuisance and infection. Artificial disinfectants cannot properly supply the place of these essentials, for, except in a small and peculiar class of cases, they are of temporary and imperfect usefulness."

The above quotations show the important relationship between the question of spontaneous generation and the destruction of contagium by disinfection. It will be seen that the operation of chemical disinfectants is very uncertain, and the disinfecting power of heat is very certain, as shown by experiments performed by Dr. Baxter, who performed ten series of vaccinations, each with six points; three of the points were heated; three were used in the virgin state. The results are shown in the following tabular statement, which shows, in columns, how many of the vaccinations were successful:—

No. of Experiment	Maximal and Minimal Temperature in Degrees, Fahr.	Results	
		Arm Operated on with Virgin Points	Arm Operated on with Points heated as denoted in Column 2
1	134·6 to 138·2	2	2
2	140 " 145·4	3	3
3	145·4 " 150·8	2	3
4	152·6 " 158	2	1
5	156·2 " 165·2	3	3
6	167 " 176	3	3
7	185 " 194	Unknown	Unknown
8	— " —	3	0
9	194 " 203	2	0
10	— " —	3	0

It will be observed that until the temperature to which the vaccine had been exposed exceeded 194° Fahr., its infective power was not destroyed.

In dealing with this question it must be remembered that ordinary fabrics will not bear a temperature above 260° Fahr. without injury. Nor is it yet proved that this temperature will in all cases destroy organic life, and it is well known that some portions of the clothing must be exposed to a temperature, quite unnecessary to the destruction of life, in order that other portions may be sufficiently heated; therefore it is decidedly better in all cases to destroy infected clothing by fire. Now, having stated so much with regard to the means we possess of destroying contagion *outside* the body, the next point to be considered is—what power have we of destroying contagion within the body? This is a question beset with many difficulties. It is quite clear that if we are to rely on disinfectants, these must be introduced into the system in sufficient quantity to cause the death of the living particles of contagion; and in doing this we must bear in mind that we do not cause the death of our patient by poisoning him with our remedies, or that we do not seriously damage or destroy some of the delicate organisms which are necessary to his healthy existence. Dr. Baxter and others have shown that the presence of albumen or bodies having a great chemical affinity for chlorine or oxygen prevent or counteract the effect of disinfectants, such as chlorine and potassic permanganate, and in a less degree sulphur dioxide. We cannot, therefore, hope that any benefit would accrue if we were able to introduce these bodies into the circulation in considerable quantities. In addition to this, we have to consider that, in the case of carbolic acid, which seems to be a powerful disinfectant, not much, if at all, impaired in its powers by the presence of organic compounds, the amount, 2 per cent., required to produce disinfection, is too great to be introduced into the system. It is known that if carbolic acid is applied over a very extensive raw surface, it may produce poisonous effects. I have myself considered it necessary to be very careful in the use of carbolic acid as a local application in small-pox on this account. We dare not, if we could, introduce 2 per cent. of carbolic acid into the circulation of a human being. Fortunately we are possessed of other disinfectants whose powers are not easily impaired by the presence of organic matter; these are quinine, salicylic acid, and *possibly* also thymol, carvol, eucalyptol, and other recently investigated antiseptics and disinfectants. The power

of these agents to destroy contagion has not yet been properly tested, but estimating their disinfectant by their known antiseptic powers (see Table, p. 99), we have good reason to conclude that they are disinfectants. Quinine and salicylic acid possess this advantage, that they can be introduced into the system in large quantities without injury to the patient. We have, therefore, two drugs which have the power of acting as disinfectants within the system. This power, indeed, seems to have been to a certain extent demonstrated in the case of these drugs. We know that the effect of the action of any contagion within the system is to produce fever, and that the essential symptom of fever is a high temperature. We know that quinine and salicylic acid, administered in large doses, reduce temperature—in fact, suspend for a time the febrile processes, and the continued use of these drugs reduces fever. We know further from the experiments of Professor Binz, of Bonn,^a that quinine possesses the power of diminishing and, in the proportion of 1 in 4,000, absolutely destroying the motive power of white blood-corpuscles, or, as Dr. Beale would term them, the bioplasts or bioplasm of the blood. Without absolutely adopting Beale's views, I think he has offered strong evidence in proof of the view that all particles of contagium are bioplasm which has undergone certain modifications—in fact, he has to some extent shown it in the cases of variola and vaccinia. We may, therefore, fairly draw the inference that an agent which has a powerful action on the bioplasm of the blood or bacteria, and which produces results (namely, the reduction of fever) which would follow if it acted on the bioplasm of contagium within the system, has the power of acting as a disinfectant within the system. Such an agent is quinine, and to it and similar agents we must look for the power to control contagion within the body. The observations of Dr. Lapper, to which I have referred, point to the fact that certain drugs, when mixed with dead blood (in such proportions as could be introduced into living blood without danger to the patient), have the power of retarding decomposition. These experiments are corroborative of the view that we do possess disinfecting agents capable of acting within the system. I think, therefore, we may fairly conclude that we can not only destroy contagion *without* but also within the body. The consideration of the counteraction of the effects of contagion would lead us into the discussion of the treatment of all the abnormal conditions that arise as a result of febrile processes set going

^a Practitioner. Vol. IX., 1872.

by the growth of contagion within the system; but in such limited time it is impossible to follow all the details of so large a question. However, I will refer to a few. In Dr. Sanderson's Report on the Processes of Fever, he says:—

"A satisfactory explanation of the nature of fever and of its relation to the febrile process is not at present possible, because we are not as yet possessed of the necessary physiological knowledge. We have elsewhere state that two possibilities are open to us. One is that fever originates in disorder of the nervous centres; that, by means of the influence of the nervous system on the systemic functions, the liberation of heat at the surface of the body is controlled or restrained, so that by retention the temperature rises, and finally that the increased temperature so produced acts on the living substance of the body so as to disorder its nutrition; the other alternative is that fever originates in the living tissues; that it is from first to last a disorder of protoplasm, and that all the systemic disturbances are secondary.

"In both hypotheses it is tacitly assumed that fever is the product of a material fever-producing cause, contained in the blood or tissue juice, the morbid action of which on the organism is antecedent to all functional disturbances whatever. At bottom we are all humoralists, and believe in infection. It is not until we have to say when and how the infection acts that questions arise. The facts and considerations we have had before us are, I think, sufficient to justify the definitive rejection of the first hypothesis in all its forms; for, on the one hand, we have seen that no disorder of the systemic functions or of the nervous centres which preside over them is capable of inducing a state which can be identified with febrile pyrexia; and, on the other, that it is possible for such a state to originate and persist in the organism after the influence of the central nervous system has been withdrawn from the tissues by the severance of the spinal cord. We are, therefore, at liberty to adopt the tissue origin of fever as the basis on which we hope *eventually* to construct an explanation of the process."

As variations in temperature in fever seem to measure more accurately than anything else the variations in the condition of a patient suffering from fever, the effects of various treatments on febrile temperature have lately excited special attention.

Three plans for the reduction of temperature seem to have been pursued:—

1. The natural one of application of cold (the cold bath, &c.).

2. The administration of aconite and similar agents, which reduce the force and rapidity of the circulation.

3. The administration of quinine, &c., which tends to diminish the febrile processes by counteracting the growth of contagium.

It must be admitted that the excess of heat produced during fever is the result of the chemical process going on within the body, and that these chemico-vital phenomena are the result of the growth of the contagium, which will continue until all suitable soil is exhausted. Taking this view of our question, it scarcely seems reasonable to expect that the mere abstraction of heat will in any way retard the processes going on. It is somewhat like attempting permanently to reduce the temperature of a room, over-heated by too large a fire, by occasional opening of the windows. No sensible person would make the attempt, but at once reduce the fire. The opening of the windows would make the room more comfortable for its occupants for the time being, just as cold water may make a fever patient more comfortable, but the cause of the fever is not influenced. I have tried (as I felt bound to do) the use of cold water in the treatment of fever, but must confess I found it useless in all, and even injurious in some cases.

The grounds for the employment of such drugs as aconite for the reduction of temperature seem to be insufficient. They lessen the rate of the circulation, and, therefore, reduce the amount of heat carried by the blood to the surface in a given time, and, in consequence, the sensible amount given off; but does not this rather tend to prolong the *fever* than to diminish it? If the heat is produced by tissue change it must be given off, and aconite has not been found to shorten fevers. Aconite is a powerful depressor of the circulation, and its use on this ground alone is contra-indicated in fever.

The grounds for the use of quinine and similar drugs are much stronger, as they absolutely tend to *diminish* the febrile processes, and not merely remove the *result* of the processes. It is in the study of the antipyretic drugs of this class that the greatest triumphs may be expected. It is among these that we must look for the power of cutting short a fever, as rheumatic fever can now be cut short by the use of salicylic acid. The doctrine that a fever cannot be cut short must be given up by physicians, and with it, of course, the so-called "expectant treatment of disease." But another question still arises. The most dangerous specific contagious diseases, as a rule, attack individuals only once in their

lifetime, and the accepted explanation of this is that the first crop of the contagium exhausted the soil necessary for its growth, and until a new soil be produced the same disease will not again take root. Now, supposing we cut short the progress of a contagious fever by killing its germs within the system before the soil is exhausted, will not the soil so left render the patient liable to a future attack of same disease? This is a question yet to be answered.

I trust I have proved, and satisfactorily so, that the present state of our knowledge of the intimate nature of contagion is sufficient to guide us in the prevention and cure of disease, and to encourage us all to earnestly prosecute its study. If I were to treat this subject as it deserves, it would occupy many more than two lectures; and I hope, in my endeavour to condense the subject or shorten my lectures, I have not rendered my meaning less intelligible, or detracted from the interest of the subject.

I conclude by again thanking the College for the honour they have done me in entrusting this important subject to my care, and by thanking those who have been present for the courtesy and attention with which they have listened to my remarks.

ART. IV.—*Records of Operative Surgery in the County Down Infirmary.* By JOHN K. MACONCHY, M.B., Dubl.; F.R.C.S.I.; Surgeon, Co. Down Infirmary; Visiting Physician, Downpatrick District Asylum, &c.

PART I.—OPERATIONS ON THE UPPER EXTREMITY.

DURING my tenure of office in the County Down Infirmary, there have been twenty-one operations of magnitude connected with upper extremity—viz., eighteen amputations, one resection, and the removal of two large tumours. Of the amputations, in five the whole limb was removed at the shoulder-joint, three were amputations of the arm, and ten of the forearm.

In those at the shoulder-joint I cannot say that I followed any particular method, as I found I had to suit the operation to the injury, and economise any bit of sound skin wherever I could find it (this, I presume, is always the case in such operations when they are necessitated by injury). The arm cases were all circular, and the forearms almost all rectangular skin flaps. A short sketch of the resection and of both the tumours will be given after the Table.

TABLE.

No.	Name	Occupation	Operation	Why required	Result	Observations
1	Robert S., aged 15	Butcher	Amputation at left shoulder-joint	Limb crushed by rollers of a scotch-mill	D. 1 day	Reported in <i>The Dublin Journal of Medical Science</i> , Vol. XLIII., p. 68.
2	Isabella C., aged 16	Farmer's daughter	Amputation at right shoulder-joint	Same	R. 49 days	Reported in the same paper; continues in good health.
3	James B., aged 16	Farmer's son	Amputation at right shoulder-joint	Same	D. 11 days	Reported in the same paper; died of secondary hemorrhage.
4	Edward B., aged 30	Farmer	Amputation at left shoulder-joint	Same	R. 104 days	Reported in the same paper.
5	James L., aged 20	Miller's son	Left upper limb removed	Same	R.	See below.
6	John F., aged 29	Labourer	Amputation of right arm, middle third	Same	R.	Reported in the same paper as former cases.
7	Patrick M'C., aged 16	Labourer	Amputation of right arm, upper third	Same	R. 50 days	Reported in the same paper.
8	John M'H., aged 13	Mill operative	Amputation of left arm at surgical neck	Limb torn by revolving wheel	R. 40 days	Vessels and nerves torn; bone comminuted.
9	William K., aged 62	Labourer	Amputation of right forearm and two fingers of left hand	Both limbs injured in a threshing machine	R. 116 days	Recovery was delayed by a large abscess over right ribs, caused by a bruise.
10	Mat. C., aged 13	Mill operative	Amputation of left forearm	Injured in a yarn factory	R. 19 days	Reported in the former paper.
11	Wm. M'N., aged 55	Labourer	Amputation of right forearm	Phlegmonous erysipelas ending in gangrene	R. 52 days	He was 52 days in the Infirmary, only 26 after the amputation.
12	Mary M'G., aged 22	Mill operative	Amputation of left forearm	Hand and wrist-joint crushed	R. 29 days	Reported in former paper.

TABLE—continued.

No.	Name	Occupation	Operation	Why required	Result	Observations
13	Eliza M'G., aged 17	Mill operative	Amputation of left forearm	Same	R. 44 days	Delay caused by suppuration of stump.
14	Thomas C., aged 13	Labourer's son	Amputation of right forearm	Hand beaten to bits by the handles of a scutch-mill	R. 2 months	With proper fencing of machinery such an accident should not happen.
15	James M'G., aged 12	Labourer's son	Amputation of right forearm	Disease of hand, with enormous hypertrophy of connective tissue	R. 6 weeks	This hand was fully as broad and deep as it was long, just the ends of the fingers protruding from the tumour.
16	Thomas J., aged 54	Labourer	Amputation of right forearm	Injured by machinery	R. 6 weeks	Was kept in the Infirmary till he was able to earn for himself.
17	John F., aged 54	Labourer	Amputation of right forearm	Hand was nearly severed by machinery	R. 50 days	—
18	Robert C., aged 26	Clerk	Amputation of left forearm	Nearly the whole centre of the hand carried away by bursting of a gun	R. 1 month	The young man walked five miles to the Infirmary after the injury; there was no shock.
19	Mary C., aged 24	Mill operative	Resection of the head of the humerus	Disease of the head of the bone	R. 73 days	See below.
20	Hanna B., aged 45	Housekeeper	Removal of a tumour from the region of the right scapula	The size and inconvenience of the tumour	R. 3 months	This tumour weighed six pounds, ten ounces, after removal. See below.
21	Catherine C., aged 30	Farm occupations	Removal of a tumour from the hand	The size rendering the hand almost useless	R. 21 days	This tumour weighed five pounds, four ounces, when removed. See below.

	Recoveries	Deaths	Total
Removal of the entire limb at the shoulder	-	3	3
Amputation of arm	-	3	3
Amputation of forearm	-	10	10
Resection	-	1	1
Tumours	-	2	2
	10	3	13

CASE No. 5.—This is the only case of destruction of a whole limb in the rollers of a scutch mill that has come to the Infirmary during the last ten years, whereas previous to that they were of frequent occurrence. This change is, I think, attributable to the substitution in many mills of patent rollers for the old wooden ones. These were, however, in use in the mill where this lad was injured. His limb was actually torn off; he was brought eight miles to the Infirmary, with the ragged wound of forcible evulsion of the limb, the head of the humerus being in the bruised soft parts. The loss of blood having nearly extinguished life, on his arrival the injured vessels were secured by Dr. Clarke, and restoratives administered; shock was succeeded by some sloughing, and notwithstanding the free and systematic use of carbolic dressings, considerable suppuration ensued, so that he was over three weeks in the house before I judged it advisable to remove the head of the humerus, which had retained its vitality. It was removed, however, with very little loss of blood, no vessel of any size being injured. After this the wound healed rapidly. His health has been good since.

CASE No. 19.—In this case there were three sinuses—two on the outer side, and one on the inner side of the shoulder—having all the appearance of being the result of diseased bone, and all leading towards the joint, but I could not get a probe to impinge on bare bone in any of them. They had been in existence for about three years. There was rigidity of the joint, and any attempt to produce motion in it was attended with pain; otherwise the patient was very healthy, and quite determined to get the disease removed if possible. The situation of the sinuses was such that, in laying them open, the incisions for making a flap of the deltoid must be almost completed. So this, in fact, was the proceeding adopted, with a view to remove diseased bone if possible without opening the joint. When the flap was raised it became apparent that the disease was inside the capsule, there being no disease outside it, and all the sinuses piercing it at its anterior external aspect. On opening the capsule, and tilting out the head of the bone, a cavity was found just above the axis of the head, between it and the greater tuberosity, large enough to admit the top of the thumb, containing a small ragged sequestrum, which lay in the cavity, bathed in thin sanious pus. The humerus was sawn just sufficiently low to entirely remove the cavity, and the parts brought together with sutures; recovery was rapid. I saw the patient two years after the operation in perfect health, and with all the under-motions of the limb.

CASE No. 20.—This enormous tumour was attached to the scapular region by a long thick pedicle, which allowed of its being moved to such an extent that she could throw it over her shoulder and present it to view, like a large purple gourd lying on the side of her neck, and occupying

the whole space from her ear to the point of the shoulder; or she could tuck it under her arm, and present it between her breast and arm. The outline was unevenly globular; its covering was thin and glossy, like a recent cicatrix, except at the pedicle, where it still resembled true skin; there was neither pain nor tenderness; her health was good, and she was quite determined to get rid of her incumbrance. In performing the operation I saved as much of the skin of the pedicle as seemed worth keeping, and dissected down on a fasciculus of blood-vessels, which were divided after all the rest of the tumour had been cleared of its attachments. There were, however, only two arteries in it of sufficient size to require ligature. When the removal was accomplished, the size of the surface wound was at least seven inches in diameter, and though the patient's health was good, cicatrization proceeded slowly; it was three months before it was completed. The tumour was 6 lbs. 10 ozs. weight, and was fatty throughout, except a fibrous nucleus about the size of an orange, in the interior of which was a small cavity containing sanious serum. The wound was perfectly healed before she left the Infirmary, and I heard of her more than five and a half years afterwards, in good health, and having had no return of the tumour.

CASE No. 21 was a lobulated tumour as large as a young child's head, irregular in outline, which had been growing for years, and had rendered the hand useless. The tips only of the ring and little fingers could be seen; the index and middle fingers were separated forcibly, and quite divergent in direction. The nature of the tumour was obviously fatty; the patient wished to be relieved of it even if it should necessitate amputation; it involved the whole back of the hand, extended upwards over the wrist, and bulged out on both lateral aspects; the palmar region, though full-looking, was tolerably free. In determining to remove the tumour without amputating, there were two circumstances that made me fear that a useful hand might not result—one, the certainty that all the extensor tendons would be exposed, and possibly become so adherent to the parts round them as to be rendered useless; the other was the divergence of the index and middle fingers, showing that the tumour had pushed through the cleft between the metacarpal bones into the palm. However, even if the hand was worse than useless afterwards, she could still get it amputated, and being of a very healthy constitution, there was little risk in giving her the chance. Another difficulty was how to make the incisions so as to have sufficient skin to cover the hand and the sides of the fingers. Having selected the positions of the incisions, and dissected back a good supply of skin, I removed the whole tumour, leaving the extensor tendons as clean as in an elaborately dissected hand, and peeled out a quantity of fat from the open metacarpal space, the total weight of the tumour removed being 5 lbs. 4 ozs. The skin was

adapted to the dorsum and fingers with sutures, the whole limb rolled in cotton wool, and then placed so that the hand was on a higher level than the elbow. In the after-treatment there was no trouble, except from the edge of several of the small flaps about the fingers sloughing to about the extent of a quarter of an inch, but in ten days after the operation the wound was perfectly healthy, and nearly all healed. In twenty-one days she left the Infirmary, though I was anxious she should stay longer, as there was a tendency to the formation of a web between the first phalanges of the index and middle fingers. Her presence was, however, required at home, and she would not stay. The ultimate result is best explained by an extract from a note of her case sent to me by Dr. Eyre Preston, of Kilkeel, a year and seven months after the operation :—

“I wrote to you some time ago about C.’s hand. I have seen her since, and nothing could be better than it is. She has perfect use of it; can milk, churn, and do every other necessary thing about the house. Beyond the cicatrix and a small web between the first and middle fingers, it is the same as the other. You proposed to her to return to have the web removed, but she sees no necessity, as it does not inconvenience her in the slightest.

“Signed, EYRE ORMSBY PRESTON, Kilkeel.

“Nov. 11th, 1877.”

The result has well justified an attempt at conservative surgery, which was undertaken with grave doubts as to the possibility of success.

The only other operation which ought to appear in this section was ligature of the third stage of the right subclavian artery, which was reported in Vol. XLV. of *The Dublin Journal of Medical Science*.

With the editors’ permission, I hope shortly to give a similar sketch of operations on the lower extremity during the same period of time.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Diseases of the Nervous System ; their Prevalence and Pathology.
By JULIUS ALTHAUS, M.D. London: Smith, Elder, & Co.
1877. 8vo. Pp. 366.

THE chief distinguishing feature of this work is an effort to establish, on a wider basis than has yet been attempted, a statistic of the prevalence of nervous diseases in general, and of each form of disease in particular. The data from which the conclusions are drawn are the Reports of the Registrar-General on the causes of death in England and Wales. From the large numbers contained in these Reports, the author makes several very remarkable deductions which in many cases differ from those drawn by other writers from figures of less magnitude. Still we do not feel so confident as Dr. Althaus is that his conclusions are better founded than those of other statisticians. M. Falret and Dr. Hammond agree in the opinion that apoplexy is more fatal among males than among females, while Dr. Althaus finds that more females than males die of this disease. M. Falret's conclusions are founded on 2,297 cases observed in the Salpêtrière, Dr. Hammond's on 229 cases, while Dr. Althaus draws his conclusions from nearly a quarter of a million cases. But if we consider the way in which these numbers have been obtained, we shall see that the conclusions drawn from the smaller numbers are probably deserving of as much, or more, confidence than those deduced from the vast statistics of the Registrar-General. M. Falret's cases were observed by men skilled in the observation of nervous diseases, and in the majority of instances the diagnosis made during life was confirmed or corrected by *post mortem* examination; whereas we have no hesitation in affirming that in the greater number of returns made to the Registrar of Deaths, no reasonable diagnosis has been made either before or after death, and that if the certifying physician were examined, he would find it very difficult to assign a satisfactory reason for the opinion which he has been compelled to give. Besides this, the classification of diseases is extremely defective,

and we cannot but think that Dr. Althaus, profiting by this, has taken certain liberties with the returns which are scarcely justifiable. For instance, under apoplexy he includes cerebral hæmorrhage, meningeal hæmorrhage, cerebral hyperæmia, acute poisoning by alcohol, opium, and other narcotic poisons, and sun-stroke, while he excludes embolism of the cerebral arteries, and places this disease under the head of paralysis, because although it often presents the symptoms of apoplexy, yet it usually leads to softening of the brain. Now, it appears to us that cerebral hæmorrhage and embolism are almost always registered under the same heading. All writers admit the extreme difficulty in the differential diagnosis of the two affections at the time of the attack, and if death occur at this early period in either affection, it will certainly be attributed to apoplexy, while if the patient survive, hemiplegia is the usual consequence of either lesion, and when death takes place it will, in both cases, be returned as paralysis.

For these and various other reasons which will occur to every reader of this work, we think that Dr. Althaus's conclusions are not so firmly established as the large numbers from which they are drawn might at first lead us to suppose.

The general results as regards the entire class of nervous diseases are summed up in five propositions:—

“I. The rate at which diseases of the nervous system prove fatal to the population of this country is a steady one, and subject to a definite law, to which there are not any, or only apparent, exceptions. This rate does not appear to vary perceptibly from time to time, and amounts to about twelve per cent. of the entire mortality from all causes.

“II. Diseases of the nervous system occupy the fourth rank amongst the maladies destructive of human life, being only surpassed in fatality by zymotic, tubercular, and respiratory diseases.”

Six periods of five years each are tabulated. Taking the mean of these six periods, it is found that zymotic diseases caused 22·90 per cent. of the deaths from all causes; tubercular diseases, 15·94; respiratory diseases, 13·00; and nervous diseases, 12·26 per cent. The deaths from zymotic diseases are subject to considerable fluctuations. Thus, in 1849, during the cholera epidemic, 30 per cent. of the entire mortality was due to this class of diseases. Tubercular diseases have diminished in frequency, while respiratory diseases have increased during the later periods. This may be in part due to differences in registration—many cases that were formerly registered as tubercular being now classified under the heading

of respiratory diseases. Nervous diseases, as we have seen, furnish a steady and constant percentage to the general mortality.

"III. Nervous diseases are not, as is commonly asserted, more frequent, but, on the contrary, less numerous in large towns than in the country, and it is probable that their occurrence is powerfully influenced by race."

Taking five periods of five years each, it is found that in London 10·66 per cent. of the entire mortality is caused by nervous diseases, while in the south-west counties of England the mean percentage is 11·20, and in Wales 15·38. From these figures the author draws the conclusion "*that excess of manual labour is more exhaustive to the nervous system than excess of mental labour*, and that the more nourishing and substantial food which is enjoyed by even the poorest classes in London, as compared with their brethren in the country, more than compensates them in this respect for the advantages the country affords, as far as air and climate and the supposed wholesomeness of rural pursuits are concerned." The great difference between the fatality of nervous diseases in the south-west counties and in Wales cannot be accounted for altogether by the less density of the population in the latter, but is due probably to a difference in race, the nervous system of the Celtic nations having a less power of endurance and of resistance to unfavourable influences than is possessed by that of the Anglo-Saxon races.

We cannot but think that the conclusions which the author draws from his third proposition are scarcely justified by the data. We question very much whether the manual work done in the country is much greater or more severe than that done in large towns, and whether the dietary of the lower orders in a rich agricultural district is less abundant or less nutritious than that enjoyed by "even the poorest classes" in London. We think that the lower relative death-rate caused by nervous diseases in London is due to the fact that other diseases have their fatality increased by the conditions of town life in even a greater proportion than nervous diseases. Such are respiratory, zymotic, tubercular diseases, and those degenerative affections caused by syphilis and alcohol, and which are generally registered under the diseases of the liver, kidneys, or whatever organ has been most prominently affected during the last illness.

"IV. Sex has a powerful influence on the production of nervous diseases; for although in this country the population of females exceeds

that of males, the deaths of males from nervous affections preponderate constantly over those of females, the male death-rate being 12·94, and the female 11·62 per cent.

“V. Age has even a more powerful influence on the production of nervous diseases than sex; for these maladies attain an immense maximum in the first year of life, owing to the great prevalence of infantile convulsions. They are much less frequent in youth and middle age, and attain a second maximum in old age—that is, after seventy—owing to the prevalence of apoplexy and paralysis; but the second maximum amounts to only about the tenth part of the first maximum attained during infant life.”

Following these propositions we have some pages devoted to the subject of classification of nervous diseases, and then a sketch of the physiological pathology of the nervous centres is given.

The different nervous diseases are then considered one by one. At the commencement of each chapter are tables and curves illustrating the frequency of the disease in question at different ages in different sexes, and the share which it has in the general mortality. Following this is a description of the pathology and symptoms of the disease. These descriptions aim apparently at great completeness and condensation of matter. They are in many cases very good, but abound with statements which would, we fancy, not meet with the approval of most physiologists or pathologists. We take the following at random. Speaking of hyperæmia of the brain or determination of blood to the head, the author divides hyperæmia into the active or arterial and the passive or venous form. The former is caused by hypertrophy of the left ventricle, with or without valvular disease, and occurs in cases of contracted kidney. “Certain pathological conditions of the blood, such as anæmia, chlorosis, and hydræmia, are also instrumental in inducing active hyperæmia. The impoverished state of the blood causes a condition of irritable debility in the motor centre of the heart, and the distribution of blood is then carried out in an irregular manner, the general result being determination of blood to the head, and chilliness of the extremities.” We are not quite clear as to what the “motor centre” of the heart is, but we cannot understand how any defect in the action of the heart can cause an anæmia of one part and an active hyperæmia of another.

Again, in the same page we read that the ingestion of alcohol, inflammatory conditions of organs in the neighbourhood of the head, severe burns, suppression of habitual discharges, or violent emotions,

more especially after meals, may cause severe active hyperæmia, sometimes to a fatal degree. "In such cases the irritation is propagated from the peripheral end of the pneumogastric nerve, or from the sentient nerves of the skin, or from the nerve-cells of the cerebral convolutions, to the vaso-motor centre in the medulla oblongata. From there (*sic*) it spreads to the vaso-motor nerves of the pia mater, and causes dilatation of the arterioles. Redness of the face and conjunctiva is generally observed at the same time, showing that the irritation has been transmitted to the fifth pair of cerebral nerves."

Dr. Althaus is a firm believer in the localisation of functions in the cerebral cortex, and places great weight on the supposed connexion between the vaso-motor nerves of the abdominal viscera and those of the occipital lobes of the brain.

A Treatise on the Pathology of the Urine, including a Complete Guide to its Analysis. By J. L. W. THUDICHUM, M.D. Second Edition. London: J. & A. Churchill. 1877. 8vo. Pp. 570.

THIS is a very difficult book to review in the limited space at our disposal, and accordingly we must content ourselves with a mere bibliographical notice of what is undoubtedly an erudite work. Indeed the only question is whether it is not too erudite ever to become a popular text-book on the subject with which it deals. No one can say that the author writes superficially; on the contrary, he is, if possible, too minute, as when (writing of grape sugar) he says:—

"Many immediate principles of plants, such as amygdaline, salicine, phloridzine, rhodeoretinic acid, rhuberythric acid, arbutine, populine, quercitrine, esculine, caincic acid, chinovic acid, tannic acid, and several animal principles, such as the cerebrine bodies of the brain, cartilage, and the chitin of lower animals, are, under the influence of *synaptase* or of dilute acids or alkalies, transformed into grape sugar and other compounds. These principles are comprised under the class of *glucosides*, or substances combined with sugar."

In a work on the urine, we think the greater part of this passage might have been omitted.

The book abounds in chemical reactions and chemical names, and the dogmatism of the author in relation to what some would consider questionable chemical formulæ is at times amusing. Thus,

in the chapter on "Urochrome," he describes the compounds of uromelanine, including *pentargyric triuromelanine*, *tricalcic tetra-uromelanine*, *monozinc triuromelanine*, &c. The formula for the second of these, he says, is $C_{144}H_{186}Ca_3N_{38}O_{40}$. In Chapter LXVII., on "Urophanic Organic Bases and Indifferent Bodies," Dr. Thudichum gives Herapath's method of extracting quinine and quinidine from urine—a method in which the resulting crystals "are proved to be the sulphate of iodo-quinine, and to have the composition $C_{98}H_{24}N_2O_8, I_2, H_2SO_4, 5 (H_2O)$." This, of course, is quite correct; but to come to the point, we think that, in a work on the pathology of the urine, all this minute chemistry is out of place, and is calculated rather to discourage than to assist the clinical investigator. Having said so much in dispraise of the book, we have exhausted our adverse criticism. Dr. Thudichum has omitted no part of his subject, and a mine of information is contained in his treatise. One characteristic feature which pleased us greatly is the short review of the history and literature of each substance which may be found at the head of every chapter. Thus, Chapter X., on "Hippuric Acid," gives the following account of that substance:—

"Rouelle, in 1784 ('Journ. de Méd.' 40), discovered a peculiar acid in the urine of cows, described its properties and differences from benzoic acid, and showed that it was destroyed during the putrefaction of the urine. Fourcroy and Vauquelin (1778, 'Journ. de la Soc. des Pharmaciens à Paris,' No. VI. 41, and tom. 14, 123) repeated the observation of Rouelle, and separated the acid from the urine by the addition of hydrochloric acid. They then, for the purpose of purifying it, as they thought, subjected it to sublimation, thus destroyed the hippuric, and obtaining benzoic acid, erroneously declared this latter to be the acid of Rouelle. With the exception of Proust ('Ann. Chim.' 14 (1820), 260), who found benzoic acid as a product of the putrefaction of human urine, and of the distillation with acids of the extract of fresh urine, animal chemists did not pay any attention to the subject of Rouelle's observation, until Liebig resumed its study ('Poggend. Ann.' 17 (1829), 389), and fully ascertained the peculiarity and chemical character of hippuric acid, as the name indicates, from horses' urine ('Ann. Chem.' 12 (1834), 20). Ure (1840, 'Med. Chir. Transact.' 26) and Keller ('Ann. Chem.' 43, 108) showed that benzoic acid, when taken into the stomach, is transformed in the body into hippuric acid, and excreted as such. Liebig ('Ann. Chem.' 50, 161) next proved that it was a normal ingredient of the urine of man; and the observation of Ure and Keller found a parallel in that of Dessaignes ('Compt. rend.' 21, 1224), who effected

the formation of hippuric acid from benzoic acid and glykocoll by chemical synthesis."

It would be impossible to enter into details as to the contents of this work. Suffice it to say that, amongst many other topics, the important subject of optical saccharimetry is fully and accurately explained, and the author awards due praise to the Rev. Professor Jellett, of the University of Dublin, for his researches in this direction. The learned Professor's polariscope is figured and described at length as the most accurate polarimeter extant.

In concluding this brief notice, we may observe that there is no preface—the author plunges at once *in medias res*. On the title-page also there is no inverted pyramid of qualifications and appointments. The work is stated to be by "J. L. W. Thudichum, M.D.," and is gracefully dedicated to Mr. John Simon, C.B., F.R.S., "as a small tribute of admiration for his many and eminent public services in maintaining and improving the health of the people, and for his untiring and generous efforts in advancing sanitary and medical science by original researches." Dr. Thudichum himself, we may be permitted to add, has also won a civic crown for similar services to his fellow-men.

A Practical Introduction to Medical Electricity; with a Compendium of Electrical Treatment translated from the French of Dr. Onimus.
By A. DE WATTEVILLE, M.A., B.Sc. London: H. K. Lewis.
1878. Pp. 152.

THIS work, as the title-page intimates, owns a double authorship. Chapters I.–IV. are from the pen of Dr. de Watteville and chapter V., on Treatment, is a translation from the treatise of Dr. Onimus. Chapters I. and II. give a clear and excellent sketch of the physical basis of electro-therapeutics, and, within a few pages, a considerable mass of sound teaching upon elementary principles is condensed. Gaiffe's instruments come in for the largest share of illustration and description, and his improved chloride of silver battery is highly spoken of. The Leclanché battery is also warmly commended, and several modifications of it are figured.

We quite concur with the author in his desire that greater precision should henceforth be introduced into the practice of medical electricity; but we fear it will take some time to educate practitioners into the adoption of such views on electric posology as

are here advocated. The unit of current strength proposed by the author, as a convenient practical standard, is termed a milliveber, and is the current yielded by three Daniell cells through the average resistance of the human body (say, 2,500 ohms). Hence we can readily express "weak currents" in electro-therapeutics as currents of 1-5 mv.; "medium currents," from 5-10 mv.; "strong currents," from 10-15 mv.; and "very strong currents," from 15-20 mv.—i.e., 45-60 cells.

In Chapter III. we have a succinct account of electro-diagnosis; and at page 100 an ingenious diagram is introduced to illustrate the connexions between certain pathological states and the electro-diagnostic phenomena accompanying them. An outline of the methods of electrification is given in Chapter IV., and Ziemssen's diagrams of the motor points are appended to the concluding chapter on treatment.

We can honestly recommend this book to our readers as an admirable practical guide to electro-therapeutics. It is, for the most part, clearly written, although, in some places, conciseness is carried almost too far, and it impresses one as the work of a writer thoroughly conversant with his subject, theoretically and practically. There is a wholesome rational tone throughout which stands in refreshing contrast to the spirit of many treatises on medical electricity. No miracles are either recounted or prophesied, and we commend the author's brief remarks on the effects of the different poles, and of the direction of the current, to those ardent partisans who wrangle with such warmth over the respective merits of the "polar method" and the "direction method."

In the next edition, which we hope soon to welcome, there will be little to correct in the sections upon elementary principles beyond a few orthographic errors and some verbal inaccuracies.

The chapter on treatment is, we think, susceptible of considerable improvement; and Dr. de Watteville's wide field of experience will surely justify him in attempting something more than a bald reproduction of the teaching of another physician.

Outlines of Physiology in its Relations to Man. By JOHN GRAY M'KENDRICK, M.D., F.R.S.E. Glasgow: James Maclehose. 1878. Pp. 750. 208 Engravings.

In his preface the author tells us that this work is intended to be a help both to the student and to the teacher of physiology. It is

meant to contain such a view of the subject as a medical student ought to be able to master in the short time which he is able to devote to the study of physiology; and it is expected that it will aid the teacher in giving to each part of this now vast science its due value, so that he will not run the risk of being discursive in some parts and meagre and superficial in others. We believe that both the author's intentions will be fulfilled. The book seems to us one of very great excellence, and to be, in some respects, better adapted for the use of students than any other English work.

Dr. M'Kendrick wisely abstains from entering into histological details. The time when anatomy and physiology could be successfully treated in one book is gone by, and each science has become of such extent as to demand separate consideration.

A very notable feature in the work, and one which to our mind adds greatly to its value, is the description of the methods of investigation by which the various physiological facts detailed have been arrived at. These descriptions are illustrated largely by drawings of apparatus, tracings got by the graphic method of registration, and other diagrams.

Several valuable appendices are placed at the end of the volume. One of these, which gives the size and weight of the different parts of the body, the measurement of the histological elements, and the specific gravity of the solids and fluids, appears to us to be extremely useful. There is an excellent index.

In conclusion, we congratulate Dr. M'Kendrick most warmly on his book, which we cordially recommend to all classes of our readers.

New Preparations. A Quarterly Journal of Medicine devoted to the Introduction of New Therapeutical Agents. Edited by DRS. DAVIS and LEONARD. Detroit.

WE have received several numbers of this new periodical, the object of which seems to be to foist into ephemeral notoriety a string of previously unknown drugs through means of the records of a number of crude and unscientific observations.

PART III.

HALF-YEARLY REPORTS.

REPORT ON PUBLIC HEALTH.*

By CHARLES A. CAMERON, M.D., L.K. & Q.C.P.I., Diplomate in Sanitary Science, Cambridge University; Fellow and Professor of Chemistry and Hygiene, Royal College of Surgeons in Ireland; Medical Officer of Health and Analyst for Dublin, &c., &c.

SUBSTITUTES FOR BUTTER.

ONE-TWENTIETH part of the weight of the body of a healthy man should consist of fat; and although that proportion may be increased somewhat without consequent injury, it is doubtful if it could be decreased without loss of health or strength. A diet destitute of, or deficient in, ready-formed fat is not calculated to efficiently nourish the tissues, or sustain the vital motions of the body. No doubt from such carbo-hydrates as starch and sugar, and probably also from albuminoids, fat can be manufactured in those wondrous laboratories—the animal digestive organs. Still in many cases it is not without an effort that the system can form fat for itself out of non-fatty materials. We have often thought that when the potato constituted almost the sole food of the Irish peasantry, the defect of the diet was not, as asserted, nitrogen, but fat. There exists in the immense majority of mankind, especially of adults, a craving for fat in some form. The Irish peasant loves to supplement his oatmeal porridge, wheaten bread, or potatoes, not with lean meat, but with the fattest of bacon. Children who often instinctively refuse to eat the fat of beef or mutton, never object to have their bread well “buttered.” In short, in some form or other, fat is liked and longed for by everyone in health.

Butter is a substance which is essentially composed of fat—indeed of several fats, some of which are of remarkable composition.

* The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of this Journal.

Formerly a cheap food in Ireland, it has now become the dearest of the ordinary animal foods. It is also not only dear, but it is very often bad, owing to the separation of some of the acids of the fats which, when uncombined, are malodorous. Of late years attempts have been made to produce factitious butter, and not altogether without success. Under the names of *butterine* and *oleo-margarine*, animal fats, treated in a peculiar manner, are now sold in enormous quantities, particularly in the manufacturing districts of England and Scotland. Butterine is chiefly manufactured in the United States, and consists chiefly, and sometimes wholly, of beef fat, beaten up into a soft mass, and coloured with saffron or annatto. It is generally sold in admixture with from 10 to 50 per cent. of ordinary butter, sometimes under the name of pure butter.

It is contended that good butterine is a more valuable and a cheaper food than bad or inferior butter, and that it is a wholesome food, well adapted for the use of all who cannot afford to buy the best qualities of genuine butter. It would, however, appear, from the results of recent inquiries, that the wholesome qualities of butterine are by no means established with certainty. Mr. Thomas Taylor, microscopist to the Department of Agriculture at Washington, has recently examined butterine. He finds that under the microscope pure butter presents a uniform appearance in regard to its colour, and which changes but little in hue when submitted to the action of polarised light; on the contrary, the butterine under the analyser is found to be filled with small shining particles, which alter in colour at every quarter turn of the analyser. In some of the specimens of butterine examined much impurity was detected; one being "highly charged with animal tissue and the urate of magnesia, the crystals of which were well defined, showing that the fat in this case was impure, and probably that of a diseased animal."

Mr. John Michels, in a recent number of the *New York Dairyman*, also presents sketches, showing the appearances presented by pure butter and butterine under the microscope. In the former there are merely the fat globules, which are so well known to those who have examined milk microscopically, with here and there a cubical crystal of common salt; whilst in the butterine there are observable numerous feathery crystals in addition to the ordinary fat globules. Mr. Michels considers that as in the manufacture of butterine the fat is never subjected to a higher temperature than

120° Fahr. it would follow that "the germs of disease (or their equivalent) morbid secretions, and embryos of parasites are thus liable to be transferred in a living condition into the systems of those who make use of this substance."

There is no doubt but that butterine consists of uncooked animal fat, and it is open to doubt whether or not beef suet, habitually consumed in a virtually raw condition, is wholesome food. For cooking purposes oleo-margarine may, of course, be safely used, but for our part we confess we would prefer to cover our bread with a layer of pure butter than a stratum of even the best oleo-margarine.

COWLS.

"Suction," or "exhausting" cowls are now very generally used as terminals of ventilating shafts. One of the most commonly employed cowls is the "Archimedian screw ventilator," thousands of which may be seen whirling round above the roofs of houses in most of the towns in the United Kingdom.

A committee appointed by the Sanitary Institute of Great Britain and Ireland made, last May, a series of experiments, with the object of ascertaining the relative merits of different forms of cowls. Only three manufacturers were found willing to submit their cowls to this competitive test. These were the air pump ventilator of Messrs. Boyle; the injector cowl of Messrs. Scott, Dunn, and Company; and Mr. Lloyd's patent cowl. The first of these is a fixed cowl, composed of a number of vertical plates, placed round a cylindrical form, and surmounted by a coned top, and terminating downwards also as a cone. The cowl of Scott and Dunn revolves, and has a cone placed transversely across the upright tube, and within which are fixed two cones on the injector principle. Mr. Lloyd's cowl resembles the well-known Dutch cowl. It is fixed, and the exhaustion of air by it is caused by the wind impinging on coned angular surfaces.

The experiments were carried out at Kew Observatory by Mr. Peggs, Associate of the Institute of Civil Engineers, under the direction of the Committee, Messrs. W. Eassie, Rogers Field, and Douglas Galton. The *modus operandi* was as follows:—Iron tubes 6 inches in diameter passed out through the roof of the experimental room, and by means of an opening extending along the length of the building the air was admitted equally to all the tubes. The pipes were 12 feet in length each, and projected 2 feet above the roof; each of three was surmounted by a cowl, and a fourth tube

was left completely open, to test the work performed by the cowls. The draught of air up each tube was determined by means of a Robinson's cup anemometer placed at the ridge of the roof, and having its indicating dial within the building. Beneath each of the four tubes was placed a three-inch current meter of Lownes' improved construction. The temperature of the air, direction of the wind, &c., were noted. The doors and windows having been closed, the air was admitted only through the long opening above described, and the current meters were adjusted under the tubes by cones placed over the three-inch meters. In this way the quantity of air passing up through each tube, and the velocity of the current, were determined.

The ventilating cowls were alternately placed on each of the tubes, and in all about one hundred trials were made with them, so that the results of the tests may be fairly regarded as at least impartial with respect to the merits of each cowl. It would, however, appear that the Committee came to the conclusion that the air passed up just as quickly through the tube without a cowl as through the tubes provided with the latter; from which it follows that the cowls merely prevent rain from falling into the ventilating pipes, and also, of course, downward draughts. The Committee consider, further, that simpler and cheaper contrivances than cowls may be used for the purpose of keeping rain out of the ventilating tubes.

The reporter who recorded the results of the above experiments in *The Times* newspaper considers that these tests do not fully establish the inutility of the cowls, for he contends that they should have been employed to extract air *downwards* through a tube. That procedure would, no doubt, have tested more severely their suction power; but still it appears to us that the cowls were tried under substantially the same conditions in which they are employed for practical purposes. We have long been of opinion, and have given expression to it, that cowls do not accelerate the current of air up open tubes; but we believe that they are useful as a means of preventing the ventilating tubes from siphoning the external air into the house.

HYGIENE OF BEER.

Dr. Boëns, in an elaborate memoir* submitted to the Académie Royale de Médecine de Belgique, treats the subject of beer as a beverage under three headings—namely, medical, hygienic, and

* Mémoires Couronnés, &c., publiés par l'Académie Royale de Médecine de Belgique. Tome IV.

social. He traces the origin of several diseases to the abuse of beer, and more especially to one of German manufacture called "Bavarian beer."

In his remarks on the use of beer, from a medical point of view, he says:—"The abuse of beer gives rise to two diseases—one acute drunkenness, the other chronic: a habit of drunkenness, or rather a habit of taking an excess of beer.

"The drunkenness produced by beer is characterised always by direct effects, sometimes by subsequent symptoms of a more or less severe nature, in some cases proving sufficient to cause death."

After making a classification of beers into several categories—new or weak beers, strong beers, and beers subjected to low fermentation—he describes the symptoms that accompany the drunkenness, and the indigestion produced by those different sorts of beer. The weak or new beer produces sleepiness, stupidity, salivation, and tainted breath, *sui generis*.

The strong beer produces sourness of the breath, heat and dryness of the mouth, a headache, and aberration of the mental power, with or without nervous excitement.

As to the Bavarian beer, besides the pathological effects produced by strong beer, it produces, especially in the forehead and temples, in the epigastric region, and even in the membranes, acute spasmodic pains, and leads to such accidents as to cause experienced medical men to believe that poison had been administered."

The author brings forth facts to show that of all beers the Bavarian produces the most serious disorders.

"The drunkenness produced by beer differs from the drunkenness occasioned by the use of the stronger alcoholic beverages or wines. In the first case there is collapse of organic and muscular strength, sometimes even from the very beginning. In the second there is more of a general excitement of the circulation and of the nervous system."

"Amongst subjects having a predisposition to certain diseases, or suffering from organic lesions, as well as in persons of a sound and healthy constitution, but who drink too much beer, drunkenness is sometimes complicated with intercurrent accidents, severe enough occasionally to endanger life, at times to leave behind them incurable infirmities, such as epilepsy, deafness, total or partial paralysis of the extremities."

Under the head of habitual drunkenness, the author describes the pathological symptoms which creep on the man who continually

abuses the use of beer, even when he does not take more than enough to excite himself; and he shows how he goes down all the steps of ruin till he arrives at stupidity and death. The abuse of this beverage brings on a general weakness, giddiness, want of sleep, diarrhœa.

As a general rule, it is the digestive organs and the liver, the pancreas and salivary glands that are most affected in the beer-drinker. Besides the numerous diseases that follow the abuse of beer we may add the following evils:—

“1. Drunkards, when procreating children, run the risk of begetting not only stunted beings, but also *idiotic*, epileptic, scrofulous, &c., offspring.

“2. Drunkards who have to undergo surgical operations—consequences of accidents or diseases—are cured with great difficulty. Fractured bones take a long time to knit; jagged wounds do not cicatrise; the least sore often becomes an ulcer, that it would be even sometimes dangerous to cure if it were possible, as it is an outlet for the impurities of a corrupted blood.”

The author concludes the first part of his memoir by a study of the pathological effects of beer of low fermentation—such as the Bavarian beer—and enters into a long personal argument against his opponents, asserting facts more than anything else, and answering attacks directed against his work. As the facts which the author asserts are only of interest to his own countrymen, we need not consider them here.

The next part of the paper treats of beer as a curative and therapeutic agent.

“In both gout and stone in the bladder Boërhaave, Stoll, Cullen, Sydenham, and Magendie prescribed beer as being nutritive, and at the same time diluent. There is no chronic disease in which beer is not advantageously taken in moderate quantity at the time of meals. In the inflammatory period of acute disease people should abstain from beer, but it becomes a useful agent in the atonic period. Nurses from the second month from the time of delivery might use beer with the most beneficial effect, but not before that, as beer being one of the most effectual agents for the production of milk, the child would take more nourishment than it requires, which would be most injudicious.

“When considering the use of beer from a hygienic point of view, it may be classified into four varieties—new beer, old beer, weak beer, and strong beer. The question has been raised—Can new beer

be used with impunity? Some recommend it, others proscribe it altogether, and only allow the consumption of beers which have undergone the process which transforms the newly-made beers into old beers. If by new beers is understood beers delivered from the vat, having only undergone the process of clarification, we do not hesitate to say that they are, if not noxious, at least of a disagreeable taste, and of difficult digestion. It is not to be doubted an instant that beers having undergone a kind of secondary fermentation are to be preferred. These improve as they become old; but only to a certain point, when they begin to impair, becoming hard, acrimonious, acid first, than syrupy and decrepit.

"In all that is to follow we shall designate by the appellation of new beer those that are *too new*, and we shall apply to those that have begun to 'ripen' the observations that are suggested to us by old beers.

"All beer *too new*, no matter how perfect it may be as to its primitive fermentation, is a beverage too complex, which is always heating, tumultuous in the stomach, especially in presence of other alimentary substances having begun to undergo gastric fermentation."

Then all new beer is to be rejected, and only two kinds of beer are left to our consideration—the weak and strong beers.

How are we to make use of beer? The act of digestion is a real fermentation, and therefore can only take place progressively, by periods and successive phases. On the other hand, we know that all fermentation can be stopped, prevented, slackened, or accelerated by certain modifying agents, which interfere unexpectedly in the course of the organic changes.

Digestion, we know, can be upset by accidental, mechanical, and other influences. Hygiene, therefore, prescribes—let digestion go on regularly, and perfect itself before introducing new alimentary substances in the digestive organs. As a consequence, beer should not be taken at any time but during meals.

But on the other hand, habits and other circumstances necessitate the introduction of a drink which may be taken with impunity as a refreshing draught. To which shall we give the preference? After having examined successively divers kinds of liquids and discussed their merits, the author gives the preference to beer, at least for his country, but with the following restrictions:—When fasting, strong beer would have the same injurious effects as the strong alcoholic French wines. Weak beer should therefore be the

ordinary drink in public houses, bars, &c. A moderate use of this beverage could not produce any perturbation if, after having taken one or two quarts (!) one took a small glass of strong beer, or a little alcoholic liquor. At home, weak beer should occupy the principal place, strong beer coming only as an accessory at the end of the meal.

The next point under consideration is:—Whom does beer suit best? "Beer agrees with everyone—that is to say, beer manufactured according to the Belgian or English processes." He gives weak beer to convalescents and weak people; he prescribes it to people suffering from gout, stone in the bladder, nerves, hysterical and epileptic patients. Strong beer is best adapted to constitutions undermined by anæmic affections, chlorosis, and venereal excesses—by hæmorrhages and acute diseases; to old people in small quantity; to the idle classes the weak beer; to the working classes, wanting to repair waste of muscle, the strong beer.

The author next considers the use of beer in a social point of view. Has beer exercised a preponderating influence on the habits and temperaments of the nations who use it? The habits and character of a nation are not so much the consequence of a particular mode of living, or the absorption of a certain article of food, as of a combination of circumstances and causes which tend to the same end. It is neither the use of beer nor the use of wine that causes the differences in the temperaments of European communities, but the nature of the soil, the climate, and the latitude. The use of beer or wine, far from being the cause, is only the effect. But under the same climatic circumstances the mode of living of people may modify their disposition; and the general use of sound or unsound beverages may have a great deal to do in increasing or suppressing the intellectual faculties of a whole population.

The author, in conclusion, seeks to prove that, in the present state of society, with the necessity of great exertions, a beverage more nutritive than water is indispensable; but as his reflections are more adapted to his country than to any other, it would not interest us much to analyse his conclusions. We may conclude from the foregoing analysis of Dr. Boëns' paper that the chief effect produced by the abuse of beer is not alcoholism but rather exhaustion and debility.

WORK OF PUBLIC ANALYSTS.

The numbers of the *Analyst* for April and May, 1878, give a summary of the work performed by the Public Analysts of the United Kingdom in 1877. We refer to the Public Analysts who were appointed under the Sale of Food and Drugs Act of 1875, or the Acts repealed by that statute. We learn from the *Analyst* that 59 Public Analysts, acting for 131 counties and towns, made 14,785 analyses of articles of food, drink, and medicine. Of these no fewer than 2,619 specimens proved to be adulterated. It is remarkable that whilst 55 English and Scotch analysts performed 11,451 analyses in 1877, 4 Irish Public Analysts made 3,334 analyses during that year. The *Analyst's* returns are not quite complete, but we believe that the Public Analysts, whose labours are not done justice to in that journal, are very few. In Ireland there are now 7 Public Analysts; and the only districts in which analysts have not, up to the present, been appointed, are the County of Louth, and the Boroughs of Dundalk and New Ross.

We gather from the reports of the analysts that milk and the stronger spirits are the articles most liable to adulteration, but it would appear that in both cases the only adulterant used is, with rare exceptions, water. This is altogether in accordance with our experience, extending over the larger part of Ireland. We constantly examine whiskey which, from its newness and excess of fusel oil, is utterly unfit to drink; but which is nevertheless perfectly free from methylated spirit, oil of vitriol, bluestone, and the other substances which, according to general belief, are used in the adulteration of whiskey. We are informed, too, by Mr. Bell, the principal of the Chemical Department of the Inland Revenue, Somerset House, London, that cases of whiskey, brandy, or gin adulteration, other than their adulteration by water, are exceedingly rare. Very little seems to have been done with respect to the detection of the adulteration of drugs. There were several prosecutions for the sale of mixtures of plaster-of-Paris and sulphur as precipitated sulphur. In some instances convictions followed; but in Dublin, in three cases, the magistrate decided that as the purchaser had not asked for precipitated sulphur, prepared according to the British Pharmacopœia, the prosecution could not be sustained.

SEWER GAS AND EAR DISEASE.

In *The Edinburgh Medical Journal* for April, 1878, Dr. James Patterson Cassells contributes a paper on the above subject, which

contains, we think, some novel facts relative to the malignant influences of sewer gases and vapours. He observed that the air of the nursery of his own house was impure. On the "flat," which included the nursery, five children and four servants slept. The servants did not complain, but three of them merely slept on the "flat" and lived elsewhere during the day. The children spent most of their time in the nursery, and though for a while not ill, they were "out of condition." On the night of the 29th June, 1874, one of the children, a boy aged eight years, became affected with a severe pain in the head:—

"On examination, I saw that both organs were acutely inflamed, and congested in their entire extent. At 10 a.m., as there was no remission of the symptoms, and in order to prevent all the evil consequences that must inevitably follow, were the usual *laissez faire* method of treating such cases adopted in this one, I freely incised each membrana tympani, and thereby gave exit to much clear serous fluid, with marked and almost instantaneous relief to all the previous suffering. This fluid, always serous-like in appearance, continued to drain away very freely for several days, to the extent of about eight fluid ounces in all. Indeed, so severe was this drain upon the patient, as to make him apparently exsanguine. Although the operation had had the effect of relieving the severe pain, and at the same time had placed a limit to the disease in the ears, he ran some risk from an acute attack of congestion of the meninges. At the end of three weeks, and without further special treatment than seemed necessary to keep the tympana free from accumulating fluid, the boy's recovery was complete in every respect."

The day after the boy complained, a girl, aged ten, became affected with similar symptoms, and was similarly and as successfully treated. Dr. Cassells terms his treatment "heroic." Later on an infant of eight months became affected, but in a few days Dr. Cassells' "heroic measures" combated the disease. Some days subsequently a girl, three years old, became nearly deaf, and was found to be affected with a painless form of catarrh of the tympanum, which only yielded to treatment much more prolonged than was found necessary in the preceding cases. Dr. Cassells having evoked the assistance of Dr. Fergus, a well-known sanitarian, found that there was a serious escapement of sewer gases from two water-closets into the nursery. The sanitary evil thus detected was speedily remedied, and since 1874 Dr. Cassells' family and servants have not suffered from any illness.

Dr. Cassells next gives us a case in which three persons in one

house into which sewer gases escaped were out of condition, and were troubled with deafness and congested naso-pharyngeal membrane. So soon as the sanitary defect was remedied the *malaise* and other bad symptoms vanished.

Four other cases are also described, in each of which one or more persons were affected with *malaise* and ear affections, which invariably disappeared when the sanitary state of their dwellings had been improved. These, and other cases not specially referred to, have convinced Dr. Cassells that sewer gas is a fruitful cause of ear disease.

LYING-IN HOSPITALS CONSIDERED WITH REGARD TO THE PROPAGATION OF PUERPERAL AFFECTIONS.

This subject is treated by Dr. Feigneaux in the *Bulletin de l'Académie Royale de Médecine de Belgique*, 1878. The question of lying-in hospitals, as presented to the medical men of all countries, has not ceased to claim efforts of every description to throw light on it. Already competent men have come forward to discuss this serious subject, startled as they were by the frightful mortality and the frequency of epidemic puerperal fever in those establishments.

Dr. Feigneaux first mentions the medical authorities he intends to refer to in the course of his work—Lefort and Gallard, S. Tarnier, G. Lorain, Empis, Lauth, in France; Semmelweis in Vienna; W. Stoltz in Russia; A. Stadfeldt in Copenhagen; McClinton, Mathews Duncan, in the United Kingdom; Hubert, jun.; S. Herpain, Hyernaux, H. Kubern, in Belgium. He then shows the urgency for reforms in the present state of the lying-in hospitals, and points out the causes of their deficiency:—"In making a summary of the present state of our knowledge of puerperal fever, my aim is to inquire into the causes of those frequent epidemics which rage so severely on the agglomeration of women at the time of their delivery; to determine the conditions suitable to combat the mortality which decimates them; and, finally, to ascertain if the principles by which the organisation of those places work give to society a sufficient amount of security.

As a fact, puerperal fever exists; but it has been designated under different denominations, from Hippocrates down to the beginning of the seventeenth century. Hippocrates and Galen attributed the acute fever from which confined women suffer to the

suppression of the lochia and the rush of these humours to the abdomen, the brain, and the breast.

Hippocrates^a looked upon it as an inflammation of the womb, and said that the lochia that stop in a confined woman are the forerunners of a speedy death, if the humour is altered and fixes itself on a noble organ. Greek and Arabian medical men were of the same opinion. Marcatus attributed it to the suppuration taking place in the uterus and to the suppression of the lochia. He made classifications of diseases, in which he united under the same appellation the accidents, complications, and consequences of acute diseases peculiar to parturient women.

"Mercurialis, Roderic of Castro, Shenk, Doublet, and Doulcet, thought that puerperal fever resulted from the metastasis of the milk and the effusion of the lochia. Solenander called it milk fever, simple or complex, and traced it to the effusion of the milk in the blood and humours." The author quotes many other medical authorities whose opinions run in the same channel.

Towards the end of the last century the opinion that attributed the disease to the metastasis of the milk and the migration of humours became entirely antiquated. Observation, enlightened by pathological physiology, opened a new era to the study of puerperal fever. In the beginning of our century, in Germany, in England, in France, in Italy, in Belgium, researches were actively directed towards the study of the nature, etiology, and treatment of puerperal fever.

In 1858 all the facts that had been observed found their way to the French Academy, and were the subject of a discussion which obtained a great and deserved notoriety. The object was to deduct from the analyses of those accumulated treasures the principles which promoted or prevented the propagation of puerperal fever in lying-in hospitals. All the orators agreed on its symptomatology and its anatomico-pathological character; but when they came to inquire into its nature and its causes, all kinds of theories were brought forth, and the most contradictory opinions were expressed. Here the author enumerates the definitions of the disease given by the medical celebrities who took part in the debates—Guérard, Depaul, Piorry, Paul Dubois, Daynau, Cruveilhier, Trousseau. Amongst these medical magnates, some considered puerperal fever as an essential fever—they were the majority; others attributed it to a special virus accompanied by symptoms always of a similar nature; a third

^a 3rd Volume. 1st and 3rd Book of Epidemics.

class looked upon it as the affection of a woman labouring under the greatest number of organo-pathological states—therefore, doubt and incertitude as to the nature of this terrible disease are prevalent. At all events it is admitted that puerperal fever—which must not be mistaken for metro-peritonitis, beginning as it does in a local inflammation, or obstetrical movements, or a chill—is a disease characterised by symptoms well defined and having always the same anatomico-pathological appearance.

The immediate causes of its invasion are obscure. Neither the individual predisposition, nor physical or moral misery, though exciting circumstances, can give a better or more complete explanation than meteorological influences, long and painful labour, &c. The suppression of the lochia—the putrefaction of the womb—has been considered as one of the original causes, without explaining the *epidemic* character of the disease which suddenly breaks out amongst women delivered in lying-in hospitals.

However, a poison, ever-renewed, runs in the blood of the patient, and contaminates the whole economy of the system. Whatever be the origin, puerperal fever is epidemic, and is contagious—that is to say, is propagated from an affected subject to another through contact, by means of a material emanation from the body of the first to the second, and spread on the subject to whom it is transmitted.* Not only does puerperal fever spread from one confined woman to another, but also by women not in the family-way; and it also spreads through the agency of medical men, clothes, &c.

The contagious character of puerperal fever is generally admitted. It is only the importance of the part it plays that gives rise to diversity of opinion. The contagious effect is increased in the same ratio as the crowding in the lying-in hospitals. Malgaigne, Tarnier, Lefort, and Barnes, supply the following figures which prove this fact, by showing the excess of mortality in the lying-in hospitals above the mortality in the population at large :—

In 1856; the mortality in the Paris lying-hospitals was 1 out of 19; while it was only 1 out of 250 outside the hospital, in the 12th arrondissement of the capital. Barnes, at the same period, found a similar disproportion in England; Malgaigne, in 1864, which shows the accuracy of the calculation made by M. Tarnier in 1856.

“Lefort, who is considered an authority on the subject of lying-in

* “*Miasme.*” Léon Colin. [“*Dictionnaire Encyclopédique des Sciences Médicales*” de Dechambre.]

hospitals, shows from the statistics collected in all the towns of Europe where lying-in hospitals exist, that the mortality in lying-in hospitals was 1 for every 29, while outside the hospitals it was only 1 out of 212. M. Dubois said that there is less danger for a woman to be confined in the street, without any help, than in any lying-in hospital.

On the other hand, Mathews Duncan is of opinion that in those comparisons the number of deaths attributed to puerperal fever in confinements out of the hospital is too small. He mentions the excessive mortality amongst the Chinese—1 out of 12, or 1 out of 20 (Dr. Janilson). In New York, 1 out of 35, not reckoning the non-registered births. In Prussia, 1 out of 84 (Faye). Norway, 1 out of 131. He considers as exaggerated the disproportion between the death-rate at home and the death-rate in the hospital, and thinks that contagion is far from having the importance that is attributed to it.

The enormous mortality of women delivered in lying-in hospitals is not confined to one establishment, to one particular town, or to any certain time of the year. From a report of the Foundling Hospital of St. Petersburg, notwithstanding the remarkable organisation of the establishment, in 1869, 73 per cent. of the confined women died; in 1870, 3·7 per cent.; in 1871, 4·9 per cent.; and, in 1872, after all the improvements had been brought about, and the minute precautions taken to avoid contagion, 3·3 per cent. died.

In times of epidemics the mortality is much more serious; hence in March, 1871, in St. Petersburg Lying-in Hospital, it was in the proportion of $\frac{1}{10}$; in April, $\frac{1}{11}$; in October, $\frac{1}{8}$. Similar results occurred in Dresden, though the proportion went on decreasing with the amelioration of the conditions of the building.

In Turin, from 1872 to 1875, a mortality of 4 per cent. occurred.

In Brussels—

Year			Deaths	
			Hospital	Lying-in Hospital
1873	-	762	-	8
1874	-	754	-	13
1875	-	768	-	2
1876	-	838	-	13
1877	-	66	-	8

“However much these facts concur in showing the enormous

mortality in lying-in hospitals, yet Dr. Stadfeldt, M. Spaeth, and M. Eug. Hubert show us that, with a strict enforcement of the laws of hygiene, the causes of infection in lying-in hospitals can be mitigated, if not entirely avoided.

"Thus, in Copenhagen, according to Dr. Stadfeldt, from 1850 to 1864, out of 15,864 women delivered, 665 died, or 1 out of every 24; while from 1865 to 1874, the rate of mortality among lying-in women was only 1 out of every 87. Similar results have been obtained in Vienna.

"The remedy would seem to be the suppression of lying-in hospitals. But for many considerations—moral, social, and scientific—the remedy would be worse than the evil; and though it has been urged that the danger of contagion was greatly increased from the attendance of the students, yet in Dublin the lying-in hospital, which is a model as well as a school, has only registered 1 death out of 84 women delivered for more than half a century.

"M. Kuborn winds up a report on the mortality amongst children by saying that the suppression of lying-in hospitals would result in an increase of the number of abortions, infanticides, and suicides—that is to say, increase of crime and decrease of population. The object in view must not be the suppression, but the improvement of those establishments."

To attain that object, and attenuate the bad effects resulting from the overcrowding of the wards, the "*Société de Médecine des Hôpitaux de Paris*" came to the following conclusions, deduced from a report of M. Bourdon:—

1. Extend, as much as possible, the system of home assistance, by supplying pregnant and lying-in women with assistance of every description.

2. Give greater development to the system of delivery in the midwives' establishments.

3. Replace the large lying-in hospitals by midwifery schools, by little homes with separated rooms, and placing them in the vicinity of the large hospitals.

4. The dissemination of small houses about town with private rooms, and complete isolation, and perfect ventilation (Tarnier).

5. The scattering of women delivered in other wards, and leaving unoccupied at least one-third of the beds for the use of confined women.

6. In case of an epidemic, distribution of the women in the other wards.

These improvements have been partially put into practice in Paris and St. Petersburg, and the results have been most satisfactory. For a period of ten years no epidemic broke out in these establishments. Besides, it has been found that the mortality diminished in the same ratio as the wards became more numerous and less crowded.

The organisation of lying-in hospitals has not yet arrived at perfection, though the study of this question has made a great step forward. The prophylaxy of lying-in hospitals rests on two preventive measures against infection and contagion. First of all, we must entirely give up large lying-in hospitals, and replace them by small houses, cottage style, divided into five or six rooms, with midwifery school, and a separate house and infirmary to receive women attacked by contagious diseases, who should receive separate medical attendance. The rooms, large and lofty, should be occupied only by five or six women at a time, and successively, so as to admit of being aired and disinfected. Some will be occupied by the women in labour, the others by women already delivered. White-washed walls and a stone flooring are indispensable. The beds should be placed far apart, and other hygienic measures used to complete the wholesome dispositions of the ward. The prophylaxy of lying-in hospitals can be condensed into three points—ventilation, the arrangement of the fire-places, and the disinfectants. Pringle said that air kills more men than the sword; therefore, plenty of pure air is indispensable to replace the air vitiated and contaminated by the presence of the infected subject, without falling into the other extreme of leaving the windows wide open all night, no matter how severe the weather, as has been recommended by American and English practitioners.

Since the researches of MM. Pasteur, Davaine, Brauel, and Vulpian, new information has been obtained regarding the properties of the noxious substance and the action of the poison acting in contagious diseases, and have given to disinfecting agents an importance which was formerly contested.

Hygiene owes to this theory of living germs one of its most powerful means of sanitary improvement. We do not propose to consider here the subject of disinfectants, but those agents are applicable not only to lying-in hospitals, to the instruments and dressing apparatus, but also to the women themselves, the midwives, &c., who attend them. The midwifery students should not enter the wards without having previously washed their hands in

phenic solutions of a 5 per cent. strength; so also should the instruments be cleansed. The women's wounds should be washed with solutions of $\frac{1}{300}$ th strength. The atmosphere might be purified in the same way.

Conclusions.—1. Lying-in hospitals are institutions of public utility. They cannot, or ought not to be suppressed, but might undergo a radical reformation.

2. Their organisation must combine the conditions of anterior arrangements and hygiene, sufficient to prevent the accumulation of too great a number of parturient women, and ward off infection and contagion.

3. No matter what the system adopted, a lying-in hospital must be specially adapted to obstetrical teaching.

4. In all lying-in hospitals parturient women should be separated from those already delivered.

5. After the discharge of the delivered women, the wards which had been occupied should remain vacant for a while, be thoroughly aired, washed, and disinfected, the mattresses emptied, the straw burned, and the linen washed.

6. Midwives attending women during parturition should not have communication with those delivered, and *vice versâ*, unless all the prophylactic precautions should have been previously taken.

7. Students who attend in the wards for contagious diseases should be forbidden entrance into the wards for parturition.

8. The midwives having charge of the wards for parturition, should not be present at the *post mortem* examinations.

9. Students should not be received in the wards without having gone through all the precautionary disinfecting processes.

10. If, in spite of those precautions, an epidemic of puerperal fever happened to break out in a lying-in hospital, it must be at once shut up.

11. If puerperal fever breaks out in the accoucheur's out-of-door practice, he must submit himself to additional precautions.

12. If, notwithstanding those additional precautions, contagious symptoms occurred, he must at once give up his practice for a while.

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL
SOCIETY.

FORTIETH ANNUAL SESSION.

Saturday, 11th May, 1878.

DR. DARBY, the President, in the Chair.

Report and Clinical Records of the Rotunda Hospitals for the year ending 5th November, 1877. By LOMBE ATTHILL, M.D., Master of the Hospital.

THE year embraced in the following Report is the first during which the arrangements lately made by the governors for the more efficient working of the institution have been in full operation. So far, these have proved satisfactory. The development of the extern maternity was, by some, looked upon as likely to diminish the number of applicants for admission into the lying-in wards. It appears to have had the opposite effect, nearly a hundred more women having been delivered in the hospital during the year just ended than in the preceding one. The admissions into the auxiliary hospital, also, have been much more numerous. This was the natural result of the increased accommodation provided for cases of uterine disease.

The number of patients treated in the various departments of the Hospital during the year ending 5th November, 1877, is as follows:—

Delivered in the Lying-in Hospital, -	-	-	1,132
„ „ extern maternity, -	-	-	603
Admitted into the auxiliary hospital, -	-	-	404

Of the 1,132 patients delivered in the Lying-in Hospital—

96 were delivered with the forceps.

9 by version.

10 cases of twins occurred.

31 „ of breech, or feet presentation.

3 „ of hand or shoulder.

- 4 cases of face presentation.
- 9 „ of prolapse of the funis.
- 12 „ of accidental hæmorrhage.
- 25 „ of *post partum* hæmorrhage (of an alarming character).
- 3 „ of placenta prævia.
- 11 „ of adherent placenta.
- 2 „ of convulsions.
- 3 „ of mania.

No case of rupture of the uterus occurred during the year.

THE FORCEPS.

I have little to add to the remarks made in my former Report with reference to the use of the forceps. I think it right, however, to say, that the percentage of cases in which this instrument was applied—namely, once in less than every twelve cases—is very high. A tendency, without doubt, now-a-days exists, to the unnecessary use of the forceps. Nor is this due to practitioners alone, for I find that patients, in not a few instances, themselves beg to be delivered, and that many are fully alive to the fact that their sufferings can be shortened by the use of instruments; and while satisfied that little danger exists of injury accruing from the application of the forceps by skilful hands, even when needlessly used, still I feel it to be my duty to discourage this tendency as far as in my power.

With respect to the debated question as to the advisability, or otherwise, of applying the forceps before the os uteri is fully dilated, I have no hesitation in saying that the practice is, in many cases, not only justifiable, but called for, and that we should be culpable were we, with our present experience, to omit in many cases doing so.

Looking back on a long experience of the use of the forceps before the os was fully dilated, I do not remember a single case in which I regret its application. I am well aware of the valid objections which exist to such a course, and consider that, if possible, the use of the forceps before the full dilatation of the os should, if possible, be avoided; but cases from time to time occur in which these objections must be set aside, otherwise we run the risk of endangering the safety of the mother and of sacrificing the life of the child. But the difficulty of the operation under such circumstances should not be overlooked; the resistance which the cervix offers to the extraction of the head is often great, while no little risk is incurred of injury being done to both mother and child from the exercise of the force necessary to overcome this. I have frequently seen the anterior lip drawn down till it could be seen under the arch of the pubes. Consider the amount of pressure to which the cervix must have been subjected in these cases during the descent of the head through the pelvis, and how liable it is to be contused and even torn, and supposing that no serious

results follow at the time, what proneness to the occurrence of chronic disease of the cervix will remain.

Another danger, not imaginary, but one which occurred in my presence some years ago, is the possibility of the blade of the forceps being applied outside the cervix, and the consequent tearing away of a portion of the lip, while traction is made. In the case which I witnessed the mistake was detected before the lip was actually torn off, but not till the point of the blade had passed through the cervix. The portion thus included subsequently sloughed off. The patient recovered. This case occurred several years ago. I relate it now because I feel that while the application of the forceps before the os is fully dilated is justifiable in some cases, the practice should, if possible, be avoided, and the frequent use of the instrument under such circumstances discouraged. Moreover, it is my firm belief that the infantile mortality, after the application of the forceps when the os is not fully dilated, is larger than is shown by statistics; for in many of these cases the child is resuscitated with difficulty, and dies within a very limited time, but, nevertheless, is registered as "born alive," and this leads to an erroneous conclusion as to the amount of real good done.

TARNIER'S FORCEPS.

Having had the good fortune, while in Paris last spring, to have the mode of application and action of this instrument demonstrated to me by the talented inventor, I procured, and have on several occasions applied, Tarnier's forceps, both in the hospital and in private practice.

It is impossible not to admire the ingenuity of the construction of this instrument, but at the same time I cannot say that I am satisfied with it. It is complicated and troublesome to manipulate, and the pressure exercised on the foetal head is so great as to endanger the life of the child. This objection appears to me to be incapable of being remedied, for in addition to the compression exercised by the screw, the traction blades evidently tend to close the extremities of the prehensile blades whenever the force necessary to effect extraction is applied. So that in difficult cases—the very ones in which the use of this instrument is advocated—it becomes most objectionable, as the pressure of the foetal head increases with the amount of force exercised. Moreover, the pressure is never relaxed, as is the case when the ordinary forceps is used. One advantage claimed for Tarnier's forceps is that it leaves the head free to rotate, and that when the head enters the brim in the third or fourth position it will consequently, during its descent, change into the second or first position. In the first case of the kind in which I used the instrument this occurred, and I was very favourably impressed by the circumstance; but in none of several similar cases in which I applied the instrument did the head rotate—it was extracted face to pubes. Consequently I have come to

the conclusion that Tarnier's forceps are not in this respect superior to Barnes' double-curved forceps, which is the instrument usually employed in the hospital; while in ease of application, and in lessened liability to compress the foetal head, the latter is decidedly superior.

CASES OF DIFFICULT LABOUR.

Tarnier's Forceps.—The following illustrates the use of Tarnier's forceps—it was the first occasion on which I applied the instrument. The case was one of considerable difficulty.

CASE I.—A. K., aged twenty-nine. Delivered June 16th, 12 30 p.m. Labour difficult, due to rigid os. Was admitted on the 13th, supposing herself to be in labour, but not being so, and living near, was sent home again.

15th—Re-admitted 11 p.m. Has had pains ever since, disturbing her rest every night. R.—Tr. opii, ℥. xl.; chloral, gr. xl.; aq. ad. ℥ii. ℥. ; ʒss. every 20 minutes. Did not sleep; pains incessant all night.

16th, 7 a.m.—Head was found low; os small and rigid; to have a warm bath. 10 a.m.—Membranes gone; head in first position; head well in pelvis; os about size of a five-shilling piece; to have another warm bath. 12 noon.—Soon after 12 o'clock I applied Tarnier's forceps, under chloroform, and the child was born alive at 12 23. The perinæum remained intact. The os was only about two-thirds open before putting on the forceps, but dilated fairly when traction was made. The instruments had held over left eye and right lower jaw and side of face. The rigid handles had indicated traction more anteriorly than is usually made, and when the blades and handles were once fixed the extraction was as easy as with ordinary English forceps, if not more so. The placenta followed the child in about twenty-two minutes, the delay being due to the fundus uteri not being easily grasped. 1 30.—Pulse 68; temp. 99°; there was no hæmorrhage; was rather fretful. 8 p.m.—Catheter passed; urine drawn off. 9 p.m.—Pulse 92; temp. 100·8°; no hæmorrhage, no pains; restless; feels thirsty. 18th.—Pulse 120; to have infusion of ergot, ʒi. with 20 grains of the hyposulphite of sodium every sixth hour; uterus tender; requires catheter still. 19th.—Pulse 106; uterus less tender; urine high coloured and thick; tongue coated. Pulse 120; temp. 101·5°; full anodyne administered last night. From this date continued to improve, and was discharged on the 27th.

Difficult Labour due to Narrowing of Antero-posterior Diameter of Pelvic Brim; Large Child; Forceps applied. Reported by MR. ANDREW HORNE.

CASE II.—M. K., aged thirty, of low stature, dark complexion, was admitted into the labour ward of the Rotunda Lying-in Hospital at 10 p.m. on August 29th, 1877, having completed her full period of pregnancy. Her history was as follows:—She had four children, all of whom, with the

exception of the first, had to be delivered by means of instruments. Her present labour commenced 22 hours previous to admission, the membranes having ruptured 8 hours prior to her coming into the hospital. On vaginal examination, the promontory of the sacrum was very easily reached, evidently projecting unduly forward; os uteri nearly three-fourths dilated; head high above the pelvic brim. Barnes' double-curved forceps were applied. Some difficulty was experienced in locking the blades, the head being so high. Steady traction was maintained for forty minutes (of course not continuously) before the head passed the brim. In fact, at one time it was feared that perforation would have to be had recourse to, so little progress was made; and it was only after the exercise of powerful traction that the head passed through the brim. After the head was born, much difficulty was experienced in extracting first the shoulders, and then the pelvis, for the child was very large, and weighed 12 lbs. 8 oz. Notwithstanding the length of time this patient was in labour, and the amount of force required to effect delivery, the child was born alive, and survived. The placenta was expelled in twenty minutes. There was severe *post partum* hæmorrhage two hours afterwards, which was controlled by cold water injected into uterus, together with subcutaneous injections of ergot. This patient made a rapid recovery, and was discharged on 10th day subsequent to delivery.

Observations.—This case shows most clearly the value of the long forceps. It would have been impossible with the ordinary short forceps to have effected delivery here.

Tedious Labour; Tarnier's Forceps applied; Diphtheritic Endometritis.

Reported by DR. PUREFOY, Assistant-Physician to the Hospital.

CASE III.—J. T., aged twenty-four, first child; delivered 18th June. Labour commenced on Saturday 16th, with escape of liquor amnii. No uterine action till early on Monday, 18th; os dilated slowly; had warm baths, chloral also administered. Tarnier's forceps applied at 10 30 p.m. on Monday, os being then fully dilated. Pulse (some hours before delivery) 116; fell afterwards to 90; fretting; is unmarried.

June 20th.—Slept part of the night. Pain over the uterus on pressure; pulse 100; temp. 101·8°; tongue rather furred; bowels not opened. Had a full anodyne last night. Ordered sulphocarbolate of sodium, gr. 10, with tincture of opium, m. 10, every 6th hour.

June 21st.—Slept well all night; uterus not so tender as yesterday; pulse 112; temp. 100·8°; tongue furred; bowels opened yesterday.

June 22nd.—Pulse 104; temp. 101·4°, fell slightly. Had rather a restless night, on account of wakefulness of child. Uterus very slightly tender; tongue still rather furred; bowels moved once yesterday. Tongue has been dry and brown in centre several times during the last three days.

June 23rd.—Pulse, in the afternoon, 102; temp. 102.4°; tongue moist and little coated; much tympany; a red patch on right buttock and over right hip.

June 24th.—Pulse 120; temp. 103°; tongue dry and rough; edges red; much tympany; surfaces of vagina covered with a thick white deposit; vaginal discharge sero-purulent; vomiting of dark-green matter, and purging; red patch on elbow. Uterus and vagina to be syringed out with a solution of carbolic acid, 3 grs. to the ounce, every 6th hour.

June 25th.—Pulse 120; much abdominal tenderness to-day; bowels quiet; vomited four times, but retained a good deal of nourishment.

June 26th, 12 noon.—Pulse 100; tongue very much better; patient says she is so; erythematous patches on hip and elbow have quite disappeared; much tympany, but only slight tenderness in right iliac fossa. Yesterday the vaginal discharge was like healthy pus; swelling and redness of external genitals much less. To-day there is continued improvement in this direction; morphia was used hypodermically last night and this morning; herpetic patch on nose. 8 p.m.—Pulse 125; tongue furred and dryish; right calf swelled and painful.

June 27th.—Slept well after needle; tongue moist, but coated in centre; looks and feels much better; pulse 96; right calf like a large bag, dusky and painful; no vomiting or purging.

June 28th, 8 p.m.—Pulse 128; tip of tongue red; some tympany still; very little tenderness; very little vaginal discharge.

June 29th, 12 noon.—Pulse 94; some diarrhoea last night; ordered the following mixture:—Subnitrate of bismuth, ʒiiss.; dilute nitric acid, ʒiiss.; tinct. of opium, ʒiiss.; compound tinct. of chloroform, ʒij.; water to ʒviii.; ʒi. every 6th hour. From this date she made a rapid recovery.

This case is a well-marked example of diphtheritic endometritis—a disease which has been fully described by Meekel, Virchow, &c. It generally begins within a few hours after delivery (or sometimes during labour), and its access is marked by a rapid rise of temperature, followed by a rigor; pre-existing fissures of the vagina or perinæum become discoloured and the discharge offensive; at the same time the abdomen becomes swollen and painful, and considerable œdema and ulceration of the genitals occur, and in some cases these parts may become gangrenous. In the uterus abundant purulent fluid is formed, and numerous ulcerations with adherent exudations, just as in the vagina. In the bladder and intestines diphtheritic patches are found; the kidneys, liver, ovaries, and spleen become enlarged and friable, and the lymphatics become dilated, their contents being either firm or soft like pus. Sometimes the pleura and pericardium become engaged, and in the joints and in the muscles, as in this case, abscesses are formed.

Coincident with these destructive changes are well-marked symptoms—viz., violent retching and vomiting of dark fluid, epistaxis and great

impairment of the mental faculties, the patient becoming somnolent and sometimes maniacal. The fever is of the continued type. The temperature ranges from 105° to 107°, and the pulse between 120 and 160. Recovery may take place, but 65 per cent. of these cases die either between the seventh and ninth days, or a little later from some of the sequelæ, such as pleuritis, pericarditis, abscesses, &c.

Treatment.—We should support the strength by the free use of quinine and stimulants, and treat the local mischief by the assiduous application of antiseptic injections into the uterus and vagina.

Narrowing of Pelvic Brim ; Premature Labour Induced ; Bipolar Version.
Reported by Mr. ANDREW HORNE.

CASE IV.—Mrs. Jones, aged twenty-seven, fair complexion, married four years, was admitted into hospital August 21st, 1877, in the eighth month of her second pregnancy.

Previous History.—States that she has never been very strong; had lived for seven years in Boston, United States, America, and was confined there two years ago, in the City Hospital, but that the child had to be delivered in “quarters.” Two months previous to that confinement she had been in hospital on account of severe pain in her back, and the physician then wished to bring on premature labour, but she refused, and went to her full time. He also told her if ever she again became pregnant, it would be with very great risk to her life. She returned to Ireland a year ago.

Present History.—Has not seen a menstrual period since January last; quite regular previous to that time.

August 22nd.—The Master (Dr. Atthill) proceeded to make a careful examination of the state of the pelvis, passing for this purpose the whole hand into the vagina, the patient being brought previously under the influence of chloroform, and found that the promontory of the sacrum projected very much forwards, so as to lessen considerably the antero-posterior diameter of the pelvic brim. He, therefore, in the hope of saving the life of the child, and to lessen the risk to the mother, decided on inducing premature labour as soon as possible.

August 27th, 10 a.m.—Dr. Atthill introduced an ordinary gum elastic catheter between the membranes and posterior wall of the uterus, to the depth of about four inches. It remained *in situ* for some hours, but then slipped out, and it was re-introduced the same evening.

August 28th.—On making a vaginal examination this morning the os was found to be the size of a sixpenny-piece. No uterine action had set in, consequently the catheter was again inserted, the external part being coiled up in the vagina; pains came on feebly in the evening.

August 29, 9 a.m.—Os had dilated to about the size of a florin; the membranes slightly protruding; has not had any pains; pulse 105.

In the hope of inducing uterine action, Dr. Atthill now ruptured the membranes; a small quantity of liq. amnii only escaped. At 2 p.m. she got a warm bath, also chloral was administered, as there was a tendency to rigidity of the os. At 11 p.m. os very little larger than a florin, there being total inertia of the uterus for some hours; pulse, risen to 120, small and quick; tongue becoming dry, chloroform was administered, and the Master performed bipolar version, two fingers only being introduced into the os uteri; a foot having been brought down, he quickly delivered the woman of a female child alive. There is nothing to add of any interest as regards her subsequent recovery, as it was quite normal in every respect. The child, however, died on the 5th day.

Observations.—This was the only case during the year in which we found it necessary to induce premature labour. The mode adopted did not prove altogether satisfactory; nothing like regular uterine action ever set in, even after the rupture of the membranes; and the patient's condition becoming unsatisfactory, I was compelled to interfere. The termination of the case was, however, very favourable.

Difficult Labour due to irregular contractions and extreme rigidity of the Cervix Uteri; Version attempted and failed; head lessened, and Delivery effected by Crotchet and Forceps; Death of Mother.

CASE V.—A. B., aged thirty-three, admitted during the night of 27th March. Membranes had ruptured before admission. At 9 a.m. on the 28th the os was three-fifths dilated; head above the brim, thrown forward, and resting on the pubes; the cervix appeared to grasp the head firmly; the pulse had risen to 125; the patient altogether in most unsatisfactory condition, and it was decided to effect delivery if possible by version, the head being in a position which would render the application of the forceps very difficult. The patient being brought under the influence of chloroform, the hand was passed into the vagina, the os uteri yielded easily enough, but as the fingers glided over the head the progress was impeded by the constriction of the os internum, which encircled the head near the base, very closely indeed. After some time this constriction was so far overcome that a foot was reached, but it was found impossible to effect version, so closely was the uterus moulded to the child, especially around the neck. On the withdrawal of the hand, the constriction already referred to became as tense as ever. Being satisfied that the child was dead, we decided to lessen the head, and allow some time to elapse before proceeding further, hoping that the difficulty to be encountered might be lessened by the moulding of the head; but after the expiration of two hours matters proved to be unaltered. I therefore proceeded to apply the cephalotribe, but in consequence of the extremely anterior position of the head, I found this to be impossible. On each attempt to crush the head the blades slipped. I compressed the head considerably, but never succeeded

in grasping it with sufficient firmness to permit my extracting it. I therefore had recourse to another method. Passing the crotchet within the cranium, and with it obtaining a pretty fair grip, I succeeded in drawing down the head sufficiently low to enable me to apply Barnes' forceps, and with the aid of them, traction also being made with the crotchet, we succeeded in effecting delivery, though even after the birth of the head the extraction of the shoulders was a matter of difficulty. The placenta proved to be morbidly adherent throughout, and its removal had to be effected by the introduction of the hand. Some slight hæmorrhage followed, which was easily controlled. The pulse after delivery was 140. The patient never rallied thoroughly. At 10 p.m. she complained of great pain in the abdomen, and became tympanitic rapidly, and died the following morning at 10 a.m.

Observations.—The foregoing case was one of the most anxious and difficult I have yet encountered. I never previously met with the extreme constriction of the cervix round the neck of the child, which existed in this case, nor do I remember one in which the application of instruments was rendered so difficult from the position which the head occupied, which was nearly out of reach, and closely encircled by the cervix.

CASES OF COMPLEX LABOUR.

The following cases, in which hæmorrhage occurred, are selected as being those of most interest :—

Partial Placenta Prævia; Version, when os was but one-third dilated, after use of Barnes' Bags; difficulty in extracting head; Forceps applied.

CASE VI.—M. N., aged forty, eleventh pregnancy, admitted Jan. 26, at 5 p.m. Stated that she was in the seventh month of pregnancy; that at 8 a.m., on the morning of her admission, she had suddenly a profuse loss of blood; this lasted for an hour and then ceased; at 4 o'clock it recommenced, and she sought admission into the hospital. On examination, the cervix was found to be very long; the os only admitted the tip of the finger; through it the head could be felt, and also the margin of the placenta overlapping the os uteri. The hæmorrhage having ceased, any treatment was for a time postponed; but as it set in again, I determined to attempt to effect delivery, the patient having become very weak. Accordingly, at 11 p.m., I succeeded in introducing Barnes' smallest bag within the os, and in distending it with water, but the hæmorrhage still continuing it was (at 12 30 a.m.) withdrawn. The os was then found to have dilated considerably, and the membranes to protrude; these were at once ruptured, and a considerable quantity of liquor amnii was evacuated. I hoped that the hæmorrhage would now cease, but in this I was disappointed—the patient continued to

lose blood freely. Her condition being now very critical, I decided to deliver by turning if possible, and, accordingly, I brought her rapidly under the influence of chloroform, and introduced my hand into the vagina; the cervix yielded with tolerable facility before my fingers, and I succeeded in grasping and bringing down a foot, without passing my whole hand into the uterus. Before doing this, however, I detached the lower portion of the placenta from its attachment to the cervix; version was accomplished easily, and the breech and body of a small foetus easily extracted, but the head was so firmly grasped by the cervix, that no force which I felt justified in using sufficed to free it. I therefore had recourse to the forceps, and passing one blade over the face, and another over the occiput, freed and extracted the head without much difficulty. The child had evidently been dead for some time.

Observations.—This case illustrated a not uncommon difficulty arising in cases of premature labour from the rigidity of the cervix uteri. I have known the head to remain, after the birth of the body, in the grasp of the cervix for hours—a source of great anxiety no less to the patient than to the attendant. The forceps should always be had recourse to under such circumstances, and, if judiciously handled, they seldom fail to enable us to extract the head. This case also shows the incorrectness of the statement, very generally believed, that hæmorrhage relaxes the cervix uteri; without doubt it has no such effect. This patient made a good recovery.

*Post Partum Hamorrhage ; Injection of Perchloride of Iron ; Transfusion ;
Death of Patient.*

CASE VII.—E. K., aged thirty, admitted into the Lying-in Hospital on Tuesday, Feb. 6, 1877, at 1 30 a.m. This was her eighth pregnancy; three days previously the waters had escaped, and since then she had suffered from slight pains. The patient was aged-looking and anæmic. On a vaginal examination (9 a.m., Tuesday, February 6th), the os was found to be soft and patulous, admitting the point of the finger easily. She had no pains during the day, and slept well that night. During the day following (Wednesday) labour advanced slightly. In the evening the cervix had disappeared, and the head could be made out presenting. On Thursday morning, February 8th, at 7 a.m., true labour pains set in, and at 4 p.m. the child was born. After an interval of twenty minutes, during which steady pressure with the hand was kept up on the fundus, the placenta was expelled. No hæmorrhage occurred, and the uterus being firmly contracted, the binder was applied. After the lapse of about half an hour, however, a stream of blood was observed trickling from the vulva, slight in quantity, but flowing continuously. The binder was consequently loosened, and the state of the uterus carefully examined. It was found to be fairly contracted, and the binder was re-applied. The oozing, however, continued. Dr. Hart, Assistant-Physician to the

Hospital, was now summoned. He injected ergot hypodermically, applied firm pressure, and a clot was expelled. The little stream of blood, however, still continuing to trickle down, he injected cold water into the uterus, without obtaining any result; the blood still trickled down, just as before. The patient's condition now became alarming; her pulse could hardly be felt, and she complained of being very weak. She was in this state when I saw her (5.45 p.m.), and, without any delay, we proceeded to inject a solution of the perchloride of iron, passing the tube up to the fundus of the uterus, and injecting about six ounces of a solution of the strength of one ounce of the strong liquor to four of water. This at once arrested the hæmorrhage, and no further loss occurred, though a watery discharge, small in quantity, was perceptible on the sheet. The patient's condition now improved, the pulse returned to the wrists, the feet and body were warm, and she expressed herself as feeling comfortable. Hot punch and beef tea were freely given, and were retained. This satisfactory state, however, did not last long. After about twenty minutes she fell into a state almost of collapse, from which the hypodermic injection of ether roused her but slightly. Seeing that her life must speedily become extinct, unless the vital powers could be invigorated, I decided on trying transfusion, and sent for Dr. R. M'Donnell to aid us. He came promptly, and at about 7.45 p.m. the process was commenced—fifteen ounces of blood being willingly afforded by Mr. Gage, one of the intern pupils of the hospital. During the interval which had elapsed, while the preparations were being made, the patient had vomited copiously, and became cold. Still the case did not appear by any means hopeless. The vein was exposed by Dr. M'Donnell without much difficulty, and, though flaccid, was not absolutely empty of blood. The point of the tube which conducted the defibrinated blood from the pipe was quickly inserted into it, and the process of transfusion at once proceeded with. The blood entered the patient's vein freely, and almost entirely by its own gravity; but the favourable results we anticipated did not occur. The pulse did not return to the wrist, and the patient, instead of expressing any sense of improvement, became restless and complained of great distress and of pain in her chest. The whole quantity of blood contained in the pipette slowly passed into the patient's system, and we continued to hope that, after a short interval, its beneficial effects would become visible, but in this we were disappointed. The restlessness and jactitation increased, and the breathing became shorter and shallower. Ether was again injected hypodermically with transient benefit, and brandy and water administered in small quantities, but in vain. She gradually sank, and died at 10 p.m., six hours after the birth of her child—two after the transfusion had been effected.

A *post mortem* examination was made twelve hours after death, by Dr. G. F. Duffey, Pathologist to the Hospital, of which the following is a note:—

"On laying open the abdomen, the uterus was found to reach nearly to the umbilicus. There was slight vascularity of the peritoneum. The uterine walls were fully one inch in thickness, not infiltrated with either blood or serum, and quite firm. The cavity of the uterus contained a large quantity of black fibrinous shreds and coagula, some of which were firmly adherent to the mucous membrane. On the posterior wall of the fundus was an elevated sessile mass, about the size of a crown piece. It could only with difficulty be separated from its attachment, and resembled an altered blood-clot or fibrinous mass, which had partly undergone fatty degeneration. The right lung was healthy, with the exception of slight and easily broken-down pleural adhesions. The left lung was so extremely adherent that it was impossible to remove the lower lobe without lacerating it. This portion of the lung was of a bright, glistening, red colour, studded with minute black points. It was non-crepitant. No plug was found in any of the larger branches of the pulmonary artery leading to it. There was a large quantity of fat on the surface of the heart. Its cavities were empty, and their walls extremely pale and flabby. To the naked eye the cardiac muscle seemed to be in a state of fatty degeneration. The walls of the right ventricle were markedly attenuated."

Observations.—Transfusion in this case, though most skilfully performed, failed to produce any beneficial effect, and, on the contrary, was followed by extreme distress. This was probably due to the condition of the lungs. We subsequently ascertained that this poor woman had been for many days without sufficient food; and little doubt can exist but that the difficulty in restraining the hæmorrhage was caused by the blood being deficient, in an extreme degree, of fibrin.

Post Partum Hæmorrhage ; Complete Failure of Pulse ; Symptoms of Septicæmia ; Death in forty-eight hours after Delivery. Reported by Mr. EDWIN THEW.

CASE VIII.—E. McL., aged thirty, first pregnancy, admitted into the lying-in hospital Feb. 27; child born at 6 30 p.m. Immediately afterwards there were successive gushes of hæmorrhage; placenta expelled by uterine action alone in five minutes; at once profuse hæmorrhage followed, which was treated by the usual application of cold cloths, &c., and ergot was given both hypodermically and by the mouth. These remedies not seeming of much avail, Dr. Hart was sent for, and, at his suggestion, the Master. About 7 30 p.m. the hæmorrhage had entirely ceased; patient much exhausted and almost pulseless; subcutaneous injection of ether and half an ounce of brandy every fifteen minutes was ordered, along with beef tea. Soon after the first dose the patient's stomach was sick; enemata of beef tea and brandy and opium given twice; hot jars to feet and spinal bag of hot water; pulse weak; repetition of ether subcutaneously; hot flannels, &c.

At 9 p.m. pulse much improved; sleeping; improvement continuing; brandy. 10 50 p.m.—Patient expresses herself as being much better, and asks for a drink; a little beef tea given.

Feb. 28th.—Patient much better, but has alternate slight rigors, followed by flushing; pulse good. Ordered, quinine 10 grs.; tinct. opii, 10 m.; liq. ferri perchlor., 10. m., every four hours.

29th.—Pulse in radial artery cannot be felt this morning, but she appears fairly well, and had a tolerable night. Feels a little sick this morning, and threw up; tongue very foul; retention of urine; water drawn off; temp. 105°; resp. 30; respiration laboured and nasal; pupils contracted; pulse can be felt at elbow; brandy, $\mathfrak{z}\text{ij}$. every hour, and tinct. digitalis, m. 5, to each dose. At 7 30 p.m. complained of great pain in the left cardiac region, and of inclination to be sick; vomited a little; poultice of linseed meal with a little mustard to left side; feels difficulty in breathing. R.—Sodæ hypophosphitis, gr. xx.; spt. amm. arom., m. xx.; tinct. chlorof. co., m. x.; tinct. opii, m. xv.; aq. ad., $\mathfrak{z}\text{ij}$.; sig.—to be given every four hours. At 9 p.m. pulse at wrist not perceptible; thirst and dyspnoea, with foul tongue. 9 45.—Evidently sinking; ether injected subcutaneously, without effect; transfusion attempted, but failed. She died in a short time, apparently of collapse.

Observations.—This is one of those cases in which the injection of hot water into the uterus would have in all probability proved most beneficial, but it was not till several months subsequently that I adopted this practice.

Twins; Post Partum Hæmorrhage; Secondary Hæmorrhage on the third day; Introduction of the Hand into Uterus; Injection of Perchloride of Iron; Death from Septicæmia. Reported by Mr. J. W. JOHNSTONE.

CASE IX.—A. C., aged twenty-three, first confinement, admitted Aug. 28. The progress of labour seemed slow; patient restless; stomach irritable and rejected food in the course of the day; otherwise no unfavourable symptoms. The first stage ended about 5 p.m., and then there was a pause, and but a few weak pains. About 7 o'clock a stimulating enema was given, and immediately the uterus was roused, and the pains continued pretty good until the birth of the first child. After a short time the membranes of the second fœtus were ruptured; a dose of ergot was given, and soon the second child was born—the presentation being a breech. Finally, after about 20 minutes, the two placentæ were, with some difficulty, expelled.

August 31st.—Pulse 134; temp. 103·2°; complains of great heat and pain over the vertex of the head; no abdominal tenderness; tongue coated, moist. Some secondary hæmorrhage at 5 30 p.m. Complains of great pain.

Sept. 3rd.—Seemed to progress fairly well up to this date, though the

temperature continued to range high (103°); but on the morning of the 3rd hæmorrhage set in, and clots came away, which were extremely fœtid, though the uterus had been syringed with Condy. The hæmorrhage continuing, patient being very weak, Dr. Atthill introduced his hand into the uterus at 9 30 p.m., the patient being at the time under the influence of chloroform. A large quantity of very fœtid clots and portion of membranes which were adherent to the fundus were brought away. The uterus was thoroughly washed out with a solution of carbolic acid, gr. ij. to ʒj., and, hæmorrhage continuing very profuse, afterwards a solution of the perchloride of iron was injected.

4th.—Pulse 108; vomited. 11 30 p.m.—Pulse 140; has no pain nor discharge.

5th.—Pulse 124; bowels moved twice since morning; vomiting green matter, without nausea. 10 p.m.—Pulse 145; makes no complaint except intense thirst.

6th.—Slept well; pulse 162; temp. 105.3° . 12 p.m.—Pulse 180; skin cool; delirium; had full anodyne liq. morph. xxx. m.; did not sleep; was wildly delirious, requiring three people to keep her quiet.

7th.—9 30 a.m.—Pulse 146; temp. 105° ; still very restless; skin cool and moist; tongue clean; had a subcutaneous injection of morphia. Died at 4 p.m. of septicæmia.

Observations.—This case also would have been admirably suited for the intra-uterine injection of hot water. Unfortunately I had not then adopted the practice. It also illustrates the danger of secondary hæmorrhage from retention of portions of the membranes, and the liability of septicæmia from decomposition of the clots, &c.

Post Partum Hæmorrhage; Hour-glass Contraction; Injection of the Perchloride of Iron.

CASE X.—B. K., aged nineteen, admitted Oct. 3rd. Child presented by the feet; labour in other respects normal; profuse hæmorrhage followed the expulsion of the placenta, which was treated by the hypodermic injection of ergot and the application of cold; this restrained the loss for a time, but after the application of the binder it recurred; the patient now became exceedingly weak, and the hæmorrhage continuing, I determined to inject the solution of the perchloride of iron, the uterus at this time being large and firm. On passing my fingers inside the os uteri, with the view of guiding in the pipe of the syringe, I found it arrested by the firm contractions of the os internum; this was overcome in a few moments, and passing four fingers into the uterus I removed several large clots, and then injected a solution of the perchloride of iron in the proportion of one part of the strong liquor to four of water; no further loss occurred. The next day this patient's temperature rose to 104° , the pulse being 140; she was put on infusion of ergot ʒi., hyposulphite of

sodium gr. 30, and tinct. of opium m. 10, every 6th hour, with great benefit; the temperature fell steadily, and she left the hospital on the 13th October.

Observations.—This woman's life was in great danger. I believe it was saved by the prompt injection of the perchloride of iron—an agent which has never, in my hands, produced any unfavourable effect.

CONVULSIONS.

Convulsions ; insensible on admission ; Death, undelivered, in two hours.

CASE XI.—M. C., aged twenty-seven, first pregnancy, admitted 9th August; a patient in the extern maternity department; first seen at 4 30 p.m. Stated to have had the first fit at about 2 30 p.m. same day. Was hypodermically; chloroform administered moderately; urine drawn off, be roused; has bitten her tongue and lip; os uteri small; head presenting; right pupil larger than left; right cheek shows some puffing; legs slightly, but decidedly œdematous. 6 10.—Hydrate of chloral gr. v., received into hospital at 5 30. Was then in a state of coma; could not very dark brown, loaded with albumen. 6 30.—Pulse 80; temp. 101.2°; chloral gr. v.; membranes ruptured; liq. amnii very dark, as if containing meconium; pulse less firm; irregular; chloroform ceased; ether injected subcutaneously; heart thought to have threatened to fail suddenly. 6 45.—Pulse firm, regular, but not as hard as on admission; occasionally (throughout) draws a deep inspiration; respiration more natural; less livid. 7 p.m.—No fits since 6 37; pulse quiet; respiration still snoring; less lividity; eyes heavy; upper lids dark and ecchymosed. 7 20.—Chloral gr. v., injected subcutaneously; deeper snoring once or twice, but without any rigidity of limbs. 7 35.—Turpentine enema; sudden lividity and cessation of respiration; injections of ether; frictions with ammonia in vain; died immediately; no autopsy could be obtained.

Observations.—This was an absolutely hopeless case from the first, the patient being unable to swallow; Dr. Purefoy tried the effect of injecting the hydrate of chloral, with some temporary benefit. I was away from the house and did not see the case. The advisability of performing the Cæsarian section was discussed, after the death of the mother, but it was considered useless, the child being probably dead.

Convulsion occurring on 7th day after delivery ; Labour Tedious ; Forceps (Tarnier's) applied. Reported by MR. WILLIAM SHAW.

CASE XII.—A. C., aged thirty-six, eleventh pregnancy; has enjoyed good health in general; states that she had "fits" after her last confinement. Labour on this occasion tedious from inertia. Forceps (Tarnier's) applied.

Case progressed favourably until the 7th day, when, at 5 p.m., she complained of headache, walked over to her bed, and was immediately

seized with an epileptiform convulsion. At 7 p.m. this was repeated; there was not thorough consciousness during the interval. A third fit occurred at 7 30 p.m.; croton oil m. j., and calomel gr. iij. were administered. Forty grains of the hydrate of chloral were ordered to be given in divided doses, and patient to be put under the influence of chloroform on the reappearance of a fit. At 8 15 p.m. patient had some convulsive twitchings of the face, and the neck was rather rigid, but the body and limbs were not affected. At 8 30 p.m. another fit came on (or rather followed immediately on patient recovering from the effect of the chloroform administered for the previous attack), in which the whole body was slightly affected with clonic spasm, somewhat more marked on the right than on the left side. Neither fit lasted more than about thirty seconds, and both yielded to chloroform. A few minutes before 9 p.m. patient vomited—the vomit chiefly consisting of blood-stained mucus; an enema of turpentine and starch was now given. At 9 30 p.m. part of the enema was expelled without fæces. Shortly after 10 o'clock patient's bowels were freely moved; 15 grains of chloral were given to patient; the difficulty, however, of getting her to swallow the medicine was so great that a good quantity was lost. An additional draught containing gr. 15 was ordered to be given should she become restless during the night. Ever since the last fit patient had remained in a quiet, drowsy state, sometimes apparently asleep, sometimes yawning and slowly rolling her head to one side or the other; and she had once recognised the nurse when spoken to by her.

September 25th.—Pulse, evening, 78. Patient slept well till 5 30 a.m., when she woke up, and asked for her child; expressed wonder at her own weakness, and wanted to know what had happened to her. She then fell asleep again, and did not waken till 7 30 a.m. At the morning visit Dr. Atthill ordered her a mixture containing gr. 30 brom. potass. and gr. 15 chlorat. potass. every sixth hour. Since the previous note patient's bowels have been twice moved—once during the day and once during the night; a normal amount of urine has been passed, and no albumen has been found; there has been no return of the fits, and patient says that, with the exception of great weakness, she feels nothing the matter with herself.

September 26th.—Pulse, morning, 76; evening, 72. In same condition as at time of last note, but weakness not so great; urine normal in amount and appearance.

September 28th.—Discharged.

Convulsions coming on 46 hours after Delivery.

CASE XIII.—M. L., age twenty-eight; admitted 5th June; delivered 6th. *Face to pubes*; forceps applied; 38½ hours in labour. Appeared quite well for first two days.

June 8th.—Had an epileptic convulsion at 4 p.m.; pupils dilated; tongue slightly bitten; ordered bromide of potassium, gr. 20; had four convulsions up to 6 30 p.m.; was ordered chloral hydrate 3j. per rectum, and bromide of potassium, gr. 20, with chloral gr. 10, to be given every two hours; is very excitable, although conscious, and medicine is given with much difficulty; enema returned almost immediately after being given. 10 p.m.—Only one dose of the medicine has been given, having slept continuously since 7 p.m. till now; pulse 104; temperature 97·4°; is restless, with twitching of flexors; ordered another draught of bromide and chloral.

June 9th.—Tongue loaded; ordered calomel and jalap bolus, which was followed by several loose motions, the last of a dysenteric character, quite red and gelatinous, and attended with much abdominal pain.

June 10th.—Abdominal pain very troublesome still; opium and poultice; pulse 104, irregularly intermittent.

June 11th.—Tongue a little coated; belly flat; occasional pain; bowels a little moved three times; pulse 119.

June 12th.—Slept well; bowels moved once early (normal), and again at 2 p.m. 5 p.m.—Pulse 130; tympany; uterus large and soft, but not tender; pain in left iliac fossa; tongue thickly coated, but moist.

June 15th.—Much improved; insists on being discharged.

These two cases are chiefly remarkable from the late period at which the convulsions occurred; both patients were seized without any premonitory symptom.

The treatment we rely on in cases of convulsions consists in the immediate administration of chloroform, and subsequently of the hydrate of chloral, with, in some cases, the bromide of potassium. Bleeding we seldom have recourse to.

Erysipelas of Head and Face; Result, Illness of Patients in adjoining Wards.

CASE XIV.—M. A. K., aged twenty, first pregnancy; admitted 15th February, at 4 p.m., in the first stage of labour, suffering from erysipelas of the whole face and head.

The mortality in the hospital during the winter of 1876-7 was very low, from the 1st November to 15th February only 4 deaths from all causes having occurred. At about 4 o'clock on the last-named day the woman referred to above was sent to the hospital in labour, and in my absence was injudiciously admitted; she was placed by herself in a small ward adjoining the large ward No. 2, which also was empty, it having on that morning undergone the usual process of cleansing to which each ward is subjected prior to a fresh batch of patients being admitted.

On my arrival at the hospital, about two hours subsequent to her admission, I found her labour so far advanced that she could not be

removed, and shortly after she was delivered of a healthy child. She passed a good night, and next morning was, to all appearance, doing well. But though there was every reason to hope that she would make a good recovery, the danger to other puerperal patients in the hospital, from her presence, was, in my opinion so great, that I deemed it right to have her removed, and early in the day she was sent to the Hardwicke Hospital. All the bedding was then removed from the ward which she had occupied to be washed and stoved, and the ward itself was fumigated and then left unoccupied for some weeks. On the afternoon of the day (15th Feb.) on which she was delivered, four patients were admitted into No. 1 ward, which is on the opposite side of the corridor to the ward which this patient occupied, and from which it is further separated by the width of the staircase. These patients were all delivered on the 15th. On the 16th and 17th six patients were admitted into No. 2 ward, which was separated from that in which the case of erysipelas had been by a small ward occupied by one of these patients. These wards opened directly off each other. Five of these six patients suffered; they had well-marked rigors, high temperature, quick pulse, severe abdominal pain, and tenderness on pressure; some, doubtless, were more seriously ill than others, but the condition of them all was such as to give rise to much anxiety, and I anticipated an outbreak of puerperal fever. Happily my fears were not realised—all these patients recovered; one was treated with 5-grain doses of quinine with 10 drops of tincture of opium every fourth hour, the others with 30-grain doses of the hyposulphite of sodium with 15 drops of the tincture of opium administered at similar intervals.

The only one who altogether escaped was a case of abortion occurring in the third month of pregnancy.

So much for the patients in No. 2 ward, which communicated with that in which the erysipelas case had been. Bear in mind that none of these patients had been admitted till after the date of the removal of that patient. All recovered, though the symptoms in all were very serious, and two were alarmingly ill. Of the four patients in No. 1 ward, two merely complained a little, a third had symptoms similar, though in a less marked degree, to those exhibited by the patients in No. 2 ward; the fourth, a very delicate woman, and who had been ailing before admission, was attacked in a similar manner and died. Here, then, of ten patients admitted into an hospital, of which the sanitary condition had, previous to the admission of a case of erysipelas, been most excellent, nine were attacked with illness more or less severe, and one died, the only one who escaped being a case of abortion.

I should add that the disease, thanks to our admirable sanitary arrangements, spread no further, and that the health of the hospital remained in the same satisfactory condition as previously.

MORTALITY DURING THE CLINICAL YEAR.

The health of the hospital was excellent during the whole period embraced in this report—only 13 deaths having occurred out of 1,132 cases—a mortality surprisingly small, considering the class of patients admitted into this hospital. Indeed I believe the rate of mortality of the institution to be lower this year than it has been at any time during the last twenty years.

I take this opportunity of pointing out that the percentage of deaths among the patients in the extern maternity was as high, or even higher, than among those delivered in the hospital, 8 deaths having been returned out of 603 cases occurring in that department—and this, though we have been unable to ascertain the result in several cases which were likely to terminate fatally, in consequence of their friends calling in practitioners unconnected with the hospital, and thus removing them from under our observation, and also in some cases obtaining their admission into other hospitals, thus rendering the mortality apparently lower than it otherwise would have been.

Following the arrangement made in my last report, I have classed the fatal cases under four heads, namely:—

CLASS I.—Deaths directly traceable to nature of the labour, seven cases.

CLASS II.—Deaths resulting from or supervening on diseases contracted before administration into hospital, two cases.

CLASS III.—Deaths occurring in patients suffering from mental distress, two cases.

CLASS IV.—Deaths not traceable to any predisposing cause, two cases.

DEATHS OCCURRING DURING YEAR ENDING 5TH NOV., 1878.

CLASS I.

Deaths directly traceable to the nature of the Labour.

CASE I.—E. K., aged thirty, eighth confinement. Delivered 8th February; died in six hours subsequently. Hæmorrhage set in soon after expulsion of placenta; could not be stopped by ordinary means; perchloride of iron injected with good result, but she nevertheless did not rally; transfusion then had recourse to in vain. For particulars of this case see page 149.—*Cause of Death: Post partum hæmorrhage.*

CASE II.—E. McL., aged thirty, first confinement. Delivered 27th February; died 1st March. Profuse hæmorrhage set in immediately after expulsion of placenta, restrained by cold, hypodermic injection of ergot. &c.; patient then much exhausted and almost pulseless; ether injected subcutaneously with some benefit; vomited everything given by mouth. Two hours subsequently, much improved and slept; pulse good. No further hæmorrhage occurred, but without any assignable cause began to sink on 29th; pulse could not be felt at wrist, and she died on 1st March.—*Cause of Death: Collapse subsequent to hæmorrhage.*

CASE III.—H. D., aged twenty-six, third confinement. Delivered 1st March; died 10th March. Placenta morbidly adherent, removed by introduction of hand; some hæmorrhage; had rigor on 2nd March, 24 hours after delivery; tongue thickly furred; uterus small and tender. Ordered 30 grains of the hyposulphite of sodium every 6th hour. 3rd.—Uterus syringed out with solution of the permanganate of potash; feels much better. 5th.—Breast full of milk; rigor at 4 p.m. 10 p.m.—Says she is quite well. 6th.—Another rigor; abdominal pain has returned; tongue dry and brown. 4 p.m.—Vomited. 7th.—Much tympany; abdominal tenderness nearly gone; vomiting continued; gradually sank.—*Cause of Death: Septicæmia. Example of repeated rigor.*

CASE IV.—A. B., aged twenty-three, fourth confinement. Delivered 28th March; died 29th. Difficult labour; membranes ruptured many hours before admission, and water drained away; previous duration of labour uncertain; was in a state of great exhaustion; os two-thirds dilated, very rigid, with a large scalp tumour formed; very little uterine action present; on passing the fingers over head of child inside os, a rigid band, probably the os internum, was felt firmly constricting the neck. The uterus was moulded to the child so closely that version was impossible; head was finally lessened, and extraction effected by aid of crotchet; cephalotribe failed. Never rallied; died next day.—*Cause of Death: Collapse.*

CASE V.—J. McK., aged twenty-nine. Delivered 30th March; died 6th April. First confinement. Labour very tedious; waters drained away early; os did not dilate; chloral administered; warm baths, &c.; finally, at the end of 48 hours, os still but two-thirds dilated, the forceps were applied, and she was delivered with difficulty of a dead child; peritonitis set in and proved fatal.—*Cause of Death: Peritonitis.*

CASE VI.—M. C., aged twenty-seven; admitted 9th August in a state of coma; stated to have had frequent convulsions before admission; died, undelivered, soon after admission.—*Cause of Death: Convulsions.*

CASE VII.—A. C., aged twenty-three, first confinement. Delivered 28th August; died 7th September. Complex labour; twins. On the 31st August complained of severe pain over vertex; no abdominal tenderness during the day; some secondary hæmorrhage occurred, which was restrained by the administration of ergot. On the 3rd September (her 7th day) hæmorrhage again set in; ordinary means failing, she was placed under influence of chloroform; the hand introduced into uterus, and a mass consisting of coagula and portion of membranes firmly adherent to fundus, in a fætid state, were removed—the uterus at same time thoroughly washed out with a solution of carbolic acid; hæmorrhage still continuing, the solution of perchloride of iron was injected, with excellent effect. She did well for the next three days, but on 6th August became wildly delirious, and died on 7th.—*Cause of Death: Septicæmia.*

CLASS II.

Deaths resulting from or supervening on Diseases contracted before admission into Hospital.

CASE VIII.—K. G., aged twenty-six, second confinement. Delivered 10th January; died 15th January. Ill on admission. Stated that on the afternoon of the preceding day she was attacked with a severe rigor which compelled her to go to bed; a few hours subsequently began to feel labour pains; got up and came into hospital; was delivered at 3 p.m. of a putrid foetus, weight $2\frac{1}{2}$ lb. At 9 a.m. same day complained of severe pain in right ankle, which soon swelled and became red. On the 11th abdomen became tympanitic and painful to the touch; pulse 150; temperature 104.2° ; face presented an anxious expression; cheeks flushed; died 15th; autopsy 7 hours after death. In addition to the usual appearance resulting from peritonitis, the whole of the inner surface of the uterus was lined by a dark gangrenous layer, which could only be separated with difficulty from the uterine wall.—*Cause of Death: Septicæmia.*

CASE IX.—M. A. H., aged thirty-six, first confinement. Delivered 5th May; died 7th. Was labouring under double pneumonia when admitted, which proved fatal two days subsequently; no abdominal symptoms whatever.—*Cause of Death: Pneumonia.*

CLASS III.

Deaths occurring in Patients suffering from extreme Mental Distress.

CASE X.—M. K., age twenty-seven, first confinement. Delivered 8th January; died 13th. Stated her age to be twenty-seven; looked upwards of forty; was much emaciated, and in a state of great debility; said that she was married, but deserted by her husband; was fretting, and evidently in great want; had a rigor at 4 p.m. on 9th; subsequently complained of tenderness all over abdomen; great tympanitis and vomiting; sank rapidly.—*Cause of Death: Peritonitis.*

CASE XI.—M. D., aged twenty-two, first confinement. Delivered 10th February; died 15th; unmarried, fretting greatly. On evening of 11th February complained of pain on pressure over uterus; became rapidly tympanitic; vomiting set in on 12th; gradually sank; mind quite clear to the last.—*Cause of Death: Peritonitis.*

CLASS IV.

Deaths not traceable to any predisposing cause.

CASE XII.—M. B., aged twenty-one, first confinement. Delivered 9th November; died 18th November. Appeared to be very delicate. Labour easy—8 hours duration; had a rigor 24 hours after delivery; right labium much swollen; vaginal mucous membrane very unhealthy-looking; pulse 120; temp. 104° . 11th, had another rigor, and vomited green fluid. No tympanitis or abdominal tenderness. 13th, became maniacal. Died 18th.—*Cause of Death: Septicæmia.*

CASE XIII.—C. B., aged thirty, third confinement. Delivered 15th February; died 21st February. Went on well till 17th, when she complained of pain above pubes. This was at first localised, but gradually extended over whole of abdomen. Believed this patient's illness was due to infection from case of erysipelas, referred to on page 156.—*Cause of Death: Peritonitis.*

Extern Maternity Department, 1876-77. Reported by MR. F. DALY and MR. ANDREW HORNE, Clinical Clerks.

No. of natural labours, 480; difficult, complex, or preternatural, 67; abortions, 56.—Total, 603.

Of presentations of the upper extremity there was 1; of the lower there were 19.

COMPLEX CASES.

Prolapse of funis, 2; hæmorrhage—*post partum* (dangerous), 9; accidental, 4; secondary, 1; twins, 11; convulsions, 2; retained placenta, 9; face presentation, 1.

The forceps was applied 25 times, namely:—For prolapse of funis, 1; for tedious labour, 23; for narrowed pelvis, 1.

Version performed 3 times:—For presentation of funis, 2; for arm presentation, 1.

Perforation and cephalotripsy, 2—*both fatal.*

Deaths occurring during Year ending November 5, 1877, in the Extern Department of the Rotunda Hospital.

CASE I.—M. K., aged thirty-seven, delivered December 21st; died December 27th; in bad health for three months before confinement. Labour tedious, lasted forty-eight hours, when forceps were applied; os four-fifths dilated, and head above brim; difficulty in extraction, child being very large. The day subsequent to delivery abdomen became tender on pressure, together with tympany. Diffuse peritonitis followed, accompanied by pleuritis. Death on sixth day.

CASE II.—M. B., aged twenty-one, delivered January 10th; died January 12th. Complex labour; funis presentation, with prominent sacral promontory and uterine inertia. Long forceps applied (head above brim; os three-fifths dilated), but failed to bring it down. A stimulating enema was given, but produced no effect. In three hours it was deemed necessary to perforate, and finally use the cephalotribe. Metritis quickly ensued, which caused death on second day.

CASE III.—M. M'N., aged thirty, delivered January 18th; died January 23rd. Labour complex; partial placenta prævia. Patient had lost a considerable quantity of blood before assistance arrived. Membranes were immediately ruptured; no hæmorrhage followed. Delivery was effected naturally in four hours; placenta retained; had to be

removed manually. Metritis developed on the second day. Uterus and vagina syringed out with a weak solution of carbolic acid. Severe vomiting set in on third day, relieved by morphia hypodermic injection, and ice to suck. On the fifth day had two attacks of syncope, from the second of which she never rallied.

CASE IV.—M. W., aged twenty-nine, delivered January 30th; died February 6th. Patient was in bad health for some months; hæmorrhage before and after delivery. When first seen was in a state of syncope; ether administered hypodermically, brandy by the mouth, after which she rallied. Secondary hæmorrhage occurred on the sixth day, and again on the seventh, under which she sank rapidly.

CASE V.—M. D., aged twenty-nine, delivered March 20th; died March 29th. Patient was labouring under acute bronchitis at time of delivery. Being somewhat relieved, on seventh day after her confinement she got up, contrary to directions, which renewed her attack, and died two days afterwards.

CASE VI.—J. F., aged thirty, delivered April 13th; died April 21st. Severe *post partum* hæmorrhage set in so copiously that it was necessary to inject perchloride of iron into uterus, which immediately checked it. On the fifth day she became maniacal, and died on the ninth day.

CASE VII.—M. B., aged fifty-four, delivered May 19th; died May 22nd. Labour natural; acute bronchitis developed on second day. At early morning on the third day after confinement sudden dyspnoea set in, followed by death.

CASE VIII.—A. N., aged eighteen, delivered July 14th, 1877; died July 16th. Labour complex; antero-posterior diameter at brim very much contracted. In labour thirty hours, when long forceps were applied, but failed to extract. Perforation was then performed, and finally the cephalotribe was brought into use before delivery could be effected. Metritis and peritonitis followed. She succumbed on second day subsequent to delivery.

DR. M'CLINTOCK.—There appears to have been a remarkable discrepancy between the rate of frequency with which the forceps has been used within the hospital and outside it. Within the hospital the frequency was 1 in 12, or about 8 per cent., whereas in the extern cases it was only about 4 per cent. This, I think, is partly to be accounted for by the fact that the larger proportion of bad cases are sent to the hospitals; but that does not altogether account for it.

DR. MORE MADDEN.—There are one or two points upon which I dissent from Dr. Atthill. He speaks in terms of high eulogy of the practice of applying the forceps before the mouth of the womb has been fully dilated by natural efforts. This practice has been lately re-introduced by papers read before this Society and elsewhere, and appears to

have been adopted very largely and generally, and, as I can bear personal testimony, with the worst possible results in certain cases.

DR. ATTHILL.—Pardon me a moment. You have said that I advocated the practice strongly, or used words to that effect. The language of my paper is as follows:—"Looking back on a large experience of the use of the forceps before the os was fully dilated, I do not remember a single case in which I used them myself in which I regret their application. But the difficulty of the operation under such circumstances should not be overlooked." I also say that I believe the saving of life by the use of the forceps before the os has been fully dilated has been over-estimated, and that "while the application of the forceps before the os uteri is fully dilated is justifiable in some cases, the practice should, if possible, be avoided."

DR. MORE MADDEN.—I stand corrected; but still the impression strongly on my mind from the early part of Dr. Atthill's paper is, that he had used the forceps before the os uteri was fully dilated, and that he had derived great advantages from it. The impression produced on my mind by the reading of Dr. Atthill's paper was, that in a certain number of cases he had used the long forceps before the os uteri had been fully dilated, and that he had derived great advantages from that practice. That statement coming from the Master of the Lying-in Hospital must have a great effect on the practice of others. I believe the use of the long forceps under such circumstances to be most dangerous. In a pamphlet which I published in 1869, and also in lectures which I delivered in the Lying-in Hospital on the use of the forceps in such cases, I pointed out the danger of the practice, and mentioned an instance in which the cervix was nearly torn away by it. I therefore venture to enter my protest against the practice. I do not know any cases, unless perhaps those of rupture of the uterus or of convulsions, or, in some instances, hæmorrhage, in which the practice can be necessary or useful in any respect; and I think that putting it into the heads of pupils is likely to be very detrimental to midwifery.

DR. CRANNY.—I have had considerable experience of the use of the forceps before the dilatation of the os uteri, and where the operation has been performed by a skilled hand I have never seen any mischief to result. I have seen cases in which considerable injury had been done by forceps, but it was only from the want of sufficient knowledge to apply it. The abuse of any instrument is no argument against the proper use of it.

DR. MACAN.—I stand up to say a few words in defence of the use of the forceps before the full dilatation of the os. In a case where the woman is at the commencement of her labour, when the os is dilated to the size of from a two-shilling to a five-shilling piece, if you attempt to put in the forceps and drag down the cervix you will very likely produce hæmorrhage and death. The whole difficulty is connected with the

sudden dilatation of the os, and that is equally objectionable whether you do it by turning through the os, or by drawing the head through the os by means of the forceps. The degree of danger attendant upon the operation depends on the thickness of the cervix and of the os, and how near you are to the inner os. The instrument should be used at a time when the os will dilate itself. In some such cases the forceps supplies a *vis à fronte* instead of a *vis à tergo*. The question is—what are you to do when the os is not dilated but the woman is manifesting serious symptoms? There is no way of securing a quick delivery in such cases except by dilating the os, whether you do that by turning the child and dragging it through the os, or by passing your hand in and causing a dilatation by the fingers.

DR. DOYLE.—I have applied the forceps in between forty and fifty cases, and in only two of these was the os not fully dilated. Where the os was not fully dilated I have applied a continuous stream of water by syringing the vagina for twenty or thirty minutes. That has a great effect in softening the os, and enables you to apply the instrument much more easily.

DR. KIDD.—The question that arises on this report as to the application of the forceps, before the os uteri is fully dilated, is a most important one. The question was on two former occasions before the Society. My opinion was then decidedly adverse to the practice, and I confess I have seen no reason since to change it. It is unfortunate that Dr. Atthill has not given us the reasons that induced him to use the forceps in the cases to which he has referred. I am quite prepared to admit that there are many cases in which it is advisable to use the forceps before the os is fully dilated. Dr. Macan has stated that there two classes of such cases. One of these is the class in which you could dilate the os easily with the finger; and, in such cases, the forceps may be applied with safety. The other is the class of cases in which you cannot dilate the os easily with the finger; and if you apply the forceps in such cases, you will, in my opinion, probably do a good deal of mischief. In the first of these classes, I think it is bad practice to apply the forceps, because you have only to dilate the os with the finger and be patient, and the woman will deliver herself. I believe that meddlesome midwifery is bad. Neither should the forceps be applied where the os is very rigid. Still there are cases in which it may be advisable to use the forceps before the os is fully dilated. If the patient has convulsions and the os be in a dilatable condition, I think it is wise to apply the forceps as early as possible in order to empty the uterus. Again, if there be accidental hæmorrhage, delivery should be accomplished as soon as possible. In both of these cases, of course, you might have recourse to version, instead of the forceps; and if the os should be not very much dilated, version would, in my opinion, be the better operation of the two. In a third class of cases, in which there is

a narrowing of the brim of the pelvis, and the head of the child is caught in the brim, and the os remains undilated from want of pressure on it, you may often employ the forceps with safety and advantage. There are, however, many of these cases also in which the operation of version is the safest. On the whole, I think it a mistake, as a general rule, to inculcate the use of the forceps before the os is fully dilated.

DR. ATTHILL (in reply).—I agree with Dr. M^cClintock that the number of cases in which the forceps was used in the hospital this year was very large. In fact I do not choose to go into explanations, but will merely say that I trust it will not be so again. The number of cases last year in which the forceps was applied was fifty-six, being half the number of the previous year; the number this year was ninety-six, and I consider that excessive, although no harm was done. With respect to Dr. Madden's observations, he evidently has misunderstood what I had said. As regards the use of the forceps before the os uteri is fully dilated, I stand in an intermediate position between my predecessor, Dr. Johnston, who advocates the present use of the forceps before the os is fully dilated, and Dr. Madden, who repudiates such a practice altogether; and I think I may class Dr. Kidd with Dr. Madden. Dr. Kidd says I did not give my reasons for the employment of the forceps in each of the cases. If I had done so it would have occupied entirely too much time. I have given general reasons; and I would ask Dr. Madden and Dr. Kidd how they would have acted in a case referred to in the report, in which the woman had been twenty-two hours in labour, the waters having drained away eight hours before her admission, and the os only two-thirds dilated, while the child's head could be with difficulty reached, being quite above the brim. Version in that case would have been, in my opinion, almost impossible, and if it had been effected the child would probably have been born dead—the only alternative being to apply the forceps before full dilatation or to perforate. As to turning, my paper gives cases in which I elected to do so, and the result was not encouraging. It is remarkable that last year my forceps cases were only fifty-six, while the mortality was thirty-seven, whereas this year the forceps cases numbered ninety-six, and the mortality was only thirteen, the number of patients being the same. With respect to Dr. Doyle's remarks as to the use of hot-water vaginal injections in certain cases of rigid os uteri, it has been my practice, in some instances, to direct the patient, while in a warm bath, to inject the water of the bath into the vagina with an ordinary syringe, and I have found this to be of much use. The application of the forceps in breech presentations is very unsatisfactory—the instrument generally slipped, while if a good grip were obtained there would be danger of injuring the child.

The Society then adjourned.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—EDWARD HAMILTON, M.D.

Secretary—E. H. BENNETT, M.D.

Intra-capsular Fracture of the Neck of the Femur.—DR. T. E. LITTLE exhibited three specimens of this lesion. He said: These specimens are, I think, interesting as presenting, in a group, types of the most remarkable varieties in manner of union of the fragments which may occur as the ultimate result of a fracture of the neck of the thigh bone within the capsule. In the first, we have the formation of a complete false joint; in the second, strong fibrous union; and in the third, an instance of the rare event of perfect osseous union.

No. 1. This specimen—consisting of the upper extremity of a left femur—was removed by my father from the body of an old woman, aged over seventy, who died some years ago in the Sligo District Lunatic Asylum, of which institution she had been an imbecile inmate for many years. I could learn nothing positive as to the number of years before death at which the accident occurred, which resulted in this injury; but I find that, at the date of the opening of the Sligo Asylum, in the year 1852, when she was transferred to that from a kindred institution, the lesion was, even then, an old affair. During life the left lower limb was found to be very much shortened, and greatly everted. The old lady, who was of small size and light weight, was, nevertheless, able to hobble about very effectively with the aid of a stick, though walking very lame. She died—bed-ridden for some years—of general paralysis.

Anatomical Characters.—The neck of the femur had been fractured within the capsule. The neck of the bone has become almost completely absorbed, with the exception of a small part of the anterior surface at its base, and of the posterior surface near the head of the bone. There is, moreover, some absorption of the head of the bone, and also of the lower fragment between the trochanters. The head of the bone has thus travelled downwards, and slightly backwards upon the lower fragment to such an extent that the upper margin of the head is three-quarters of an inch below the level of the top of the trochanter. The head of the bone was almost immovable, fixed in the acetabulum by strong fibrous bands of adhesion, attaching the bones across the articulation—the encrusting cartilage of both the femur and acetabulum being absorbed to a considerable extent. The ligamentum teres was reduced

to a loose mass of short ligamentous fibres, scarcely distinguishable from these bands of adhesion. The base of the upper fragment plays upon the upper portion of the shaft between the trochanters—the surfaces of the fragments fitting one another very accurately. They are mutually concavo-convex, forming an approach to the ephippary, or saddle-shaped, variety of articulation. The apposed surfaces were, in the recent state, coated with a layer of tissue of tolerable thickness, of fibro-cartilaginous appearance and consistence. The space between them freely communicated with, and indeed formed the principal part that remained of, the articular synovial cavity of the hip, constituting a veritable false joint. The capsular ligament was very strong, thick, and short, but sufficiently loose to allow of a good deal of free mutual motion between the fragments. There exists a very small osteophytic outgrowth on the upper part of the lower fragment anteriorly, just above the lesser trochanter. The osseous tissue of both fragments is extremely light, soft, and atrophic—a fact which may be attributed to the long confinement before death.

No. 2. The case from which this specimen was removed was that of a healthy man, who—like the last subject—had been for many years, and up to his death, an inmate of the Sligo Lunatic Asylum. I could arrive at no accurate information in this case either, as to the date of the occurrence of the fracture—the man himself being perfectly incoherent, but I ascertained that it was at least of more than four years' standing at the time of death, and, probably, very considerably older. The man walked well; and, though the foot was much everted and the leg considerably shortened, with a wonderfully small amount of limping. He did not use a crutch or stick, and had proved himself capable of working most usefully and actively at the ordinary field labour, upon which some of the inmates of the institution are customarily employed. His age when he died was fifty-four; so that the accident must have occurred to him before he was fifty. He died of an attack of acute pneumonia.

Anatomical Characters.—The neck of the thigh bone had been broken, the line of fracture running entirely within the capsule. The direction of the fracture appears to be tolerably transverse, about half an inch above the base of the neck. There exists some comminution of the inferior and anterior portions of the upper fragment—a couple of pieces of the under-surface of the neck still remaining firmly impacted and embedded in the cancellous tissue of the under-surface of the head. The head of the bone is depressed, so that its upper margin is at the level of the top of the great trochanter, and its lower part, at the corona, rests on the broken extremity of the lower fragment, just above the lesser trochanter. In this situation a small osteophytic outgrowth exists on the posterior and under-surface of the neck, in such a position as to support the head in its abnormally depressed situation, and which is entirely above the posterior inter-trochanteric line. The two fragments are rotated upon one another,

so as to present an angle which is salient outwards, upwards, and forwards. The capsular ligament was entire. The ligamentum teres was still present and unruptured, but softened and absorbed in the middle. In the recent state, so close and compact was the union between the fragments, that I was at first, and for some time, quite certain that I had to do with a case of genuine osseous union. The most forcible manipulation did not produce the slightest degree of mobility of one fragment upon the other; and it was not until after subjecting the specimen to the crucial test of prolonged boiling that it separated into the fragments now shown. There were also a few other small comminuted pieces of the neck, which have become lost, but which also separated in the boiling. It can now be seen, from the present condition of the specimen, after this experiment, that the points of bony contact are really comparatively sparing, and mostly confined to the circumferential regions of the fragments behind and below—a large gap existing between them anteriorly, which was filled up by a mass of extremely dense and strong fibrous tissue, in which lay the small pieces of bone just mentioned, and which had united the parts quite as firmly and as immovably as if bony union had been accomplished.

No. 3. This is one of those rare cases of bony union in a case of intra-capsular fracture of the neck of the thigh bone. This bone—a left femur—was removed from the body of one of the subjects dissected in the School of Physic during the session of 1874-5. I was unable to arrive at any history of the injury, or of the condition of the subject of it during life. The body, however, was that of a very old woman, at least between sixty and seventy. The neck of the femur has been fractured within the capsule, but firm and complete bony union has taken place. Both the fracture and union are, obviously, of great antiquity. The osseous tissue of the whole bone, generally, is atrophic, the compact tissue thinned and brittle, and the cancellous tissue open and of great delicacy, and with, here and there, large oil spaces throughout it. The fragments are united in such a manner that, with reference to the shaft and trochanters, the head and neck have undergone a three-fold displacement—*i. e.*, firstly, the head is depressed slightly, so that its upper surface is almost exactly on a level with the top of the greater trochanter; secondly, in consequence of the ordinary rotation outwards of the leg and foot, the neck makes, with the lower fragment, an angle upwards, outwards, and somewhat forwards; and, thirdly, the shaft has become displaced slightly backwards, so that the lower extremity of the pelvic fragment lies some lines in front of it; and we have, in consequence, some increase of the antero-posterior measurement of the bone at the base of the neck. The fracture is considerably oblique, the plane of fracture running downwards and forwards, so that the compact tissue of the neck is broken at a considerably lower level on the anterior than on the posterior aspect. As

marked upon the surface of the bone, the line of fracture commences above about a quarter of an inch below the corona, where we see that sharp, angular, or pyramidal process of bone, which forms so curiously constant and characteristic a feature in illustrations or specimens of this lesion. From this, on the posterior surface, the fracture runs downwards and inwards, rather more close to the corona than above. On the anterior surface, the line of fracture descends, however, considerably further down on the neck, approaching to the upper part of the inter-trochanteric line. It is this last piece of the upper fragment which (as referred to in speaking of the third displacement) comes to lie in front of and somewhat overlap the lower fragment. Above, the fracture is marked by the sharp process already alluded to, behind and below by a more or less deep groove or sulcus; anteriorly, however, it is marked by a slight prominence of the bone, from which a small, sharp, bony edge projects upwards. On examination of a vertical section of the bone, through the head and neck and great trochanter, there is seen to exist a complete continuity of osseous tissue through the region of fracture. The compact tissue of the inferior part of the neck is greatly thickened, and very dense and strong; and a line of more or less consolidated osseous tissue marks the course of the section of the line of fracture, more especially in the part belonging to the upper fragment, running across the cancellous tissue of the neck. In the cancellous tissue in the neighbourhood, however, there are several spaces, which were filled with oil, indicating spots of loss or absorption of bone.

Remarks.—These three specimens illustrate the very different pathological results which may, in different cases, follow upon intra-capsular fracture of the neck of the femur—in one case, absolute non-union and false joint; in another, strong fibrous union; and, in the third, complete osseous union. What are the elements which, in three cases of similar injury, influence the production of such remarkably diverse results, is a question which still awaits a satisfactory answer from surgical pathologists; and I must confess that I can see nothing to assist us in the history (so far as known) or circumstances of the present cases, in arriving at it.

With regard to the first case, it is curious and worth noting—although this I believe to be the rule in such cases—how completely the new false joint between the fragments had functionally replaced the true hip-joint, the cavity of which was (as I have mentioned) almost entirely obliterated by old adhesions between the opposite articular surfaces, as we know to occur in joints which have been for long subjected to disease. It is, too, interesting, I think, to observe how nature, in moulding the new joint, has produced that form of articulation—the concavo-convex—which next, perhaps, to the ball and socket joint, would allow of the greatest universality of motion.

The second case is, I think, a particularly instructive one. The union, although (as mentioned) not actually osseous, was so intimate and firm that not the slightest mutual motion of the fragments was permitted; and the union was actually quite as practically useful to the subject of the injury as bony union could have been—a view which the account of the man's habits and capabilities during life confirms. I may be pardoned a passing allusion to the practical lesson which I think this specimen and case suggest—viz., that, even although in a case of intra-capsular fracture of the femur's neck, we must, as a rule, despair of obtaining bony union, still we may occasionally look forward to, and in our treatment keep in view, the accomplishment of a kind and amount of fibrous union which will leave a practically very efficient limb; and we should not always look upon the inability or failure to procure osseous union as quite condemnatory of a future useful member. The occurrence of the mass of bony outgrowth at the posterior and under-surface of the neck of the femur, beneath the line of fracture in this case, is peculiar, such osteophytes being generally unusual in *intra-capsular* fractures. It is, certainly, a fact that, in this case, this bony mass is deposited just in that place where it is capable of giving the most efficient support to the head of the bone in its abnormal position; although Professor R. W. Smith enters upon a somewhat lengthy argument to show that the affording of such support is not the "final cause" (as he terms it) of these growths. I myself think that its occurrence here is simply the result of this having been the situation most exposed to influences of irritation from motion, pressure, and such like stimuli—just in the same way as similar influences, in the general case of fractures, act in the production of so-called provisional callus elsewhere. This bony outgrowth (referred to in this case), although it would be described as *intra-capsular*, is nevertheless *extra-articular*—a distinction, in my opinion, not by any means sufficiently clearly kept in view in discussions relating to the class of injuries in question—that is, it is external to the reflection of the synovial membrane of the joint. It is to be remembered that, neither in front nor behind, does the synovial membrane pass down upon the neck of the bone as far as the inter-trochanteric lines, and that it is reflected at a somewhat higher level behind than in front. Now, it is between the posterior inter-trochanteric line and the posterior reflection of the synovial membrane that the osteophyte in question has occurred in this case; and it would seem to me that it is rather the fact that the irritation (or whatever other cause is efficient for the production of these products) is outside the synovial membrane than outside the capsular ligament which has determined its occurrence. A similar observation, indeed, would apply to the much smaller, though similar, outgrowth in Case I.

The third specimen which I have shown possesses the interest which attaches to cases of such an unusual event as the osseous union of an intra-

capsular fracture of the neck of the femur. It presents some points in common with the other rare cases of the kind which have, from time to time, been placed on record. We have, that is to say, the same conditions as to angular displacement of fragments; we observe the presence of that curious pyramidal spur of bone on the upper surface of the neck, which is so constant a feature of these specimens; we have the same condensation of the compact osseous tissue of the under-surface of the neck; and a similar line of osseous condensation crossing the neck at the site of fracture. But it is rather to those points in which the present case presents a contrast with others of the kind, that I am acquainted with, that I would more especially wish to draw attention. They seem to me to be these:—(1) The greater obliquity than usual of the fracture, the line of fracture anteriorly lying much lower down upon the neck of the bone than in any other specimen I am acquainted with. (2) The amount of displacement *en masse* forwards of the upper fragment (or, more correctly speaking, of the lower fragment *backwards*) is unusual—i. e., we have, in this place, in addition to the ordinary angular displacement met with in these cases, a certain amount of antero-posterior displacement not commonly observed. This displacement it is which has produced (3) an increase in the antero-posterior breadth of the bone at the base of the neck; and (4) the outgrowth of this slender row of osteophytes just below the anterior line of fracture—such growths being, at least, not common in intra-capsular fractures. This peculiarity of the specimen may, I think, owe its explanation to a similar cause to that to which I have ascribed the presence of somewhat similar outgrowths in the other cases—viz., to the fact that the fracture has, in this anterior situation, traversed the neck of the bone at a point external to the synovial reflection, although internal to the capsular attachment, and to the irritation produced in this region by the thrusting forwards of the upper fragment. (5) I fail to see in the appearances of this specimen any evidences of its having been ever impacted in any way, notwithstanding the repeated assertion of Professor Smith, that all such are instances of impacted fractures. In fact, the obviously oblique direction of the fracture here would, in the first place, render impaction, to say the least, unlikely; and if impaction did occur, with such a direction of obliquity, and with the present position of the fragments, any form of it, except that of the posterior part of the lower fragment into the upper, would be scarcely conceivable; and, on making a section along the axis of the neck, through the posterior part of it, I see no evidences or appearance of any trace of the posterior compact tissue embedded in the upper fragment. Although the personal history of the subject to whom this specimen belonged is so absolutely defective, yet there are a couple of points of internal evidence afforded by the consideration of the body of the specimen itself, which are, I think, of some importance—viz., firstly, the

obvious great antiquity of the injury, upon which an inspection of the specimen can leave no doubt; so that we may fairly conclude that, although the subject of it was an old woman, it is probable that, at the time of the occurrence of the fracture, she may not have reached that advanced period of life at which union by bone would be, at least, more than usually unlikely. Secondly, we have an abnormal condition of the lower extremity of this same femur, which points, unequivocally, I think, to the existence of an old and severe fracture, involving the condyloid region, and which we may presumably suppose to have occurred simultaneously with the cervical fracture. These evidences all point in the direction of the probability that the original accident, which caused the fractures, was one of a considerably severe and serious character. Now, I think it may be asserted, as a correct surgical maxim, that those cases of fracture of the cervix femoris in which a severe accident has caused the lesion, are (paradox though it may at a first thought seem), *ceteris paribus*, in a more favourable condition, as to prognosis of bony union, than those in which the injury has resulted from such a slight, but well-known, cause as tripping over a hole in the carpet, or some such insignificant cause, inasmuch as this latter class of cases indicates, in the very circumstances of their occurrence a condition of degeneration of the osseous tissue which forms, in the mass of these cases, perhaps, the main pathological reason for the failure of bony union.—Feb. 23, 1878.

Tubercular Disease of the Lungs in the Large Carnivora.—THE REV. DR. HAUGHTON, F.T.C.D., said: In the present condition of this specimen there is really nothing to be seen. I brought it here as it illustrates the error of the teaching of the late Dr. Graves—that the cause of death of the large carnivores, on coming to these countries to our menageries and gardens, was due to tubercle; and others have followed him in the opinion that the tubercle of which these lions and tigers died, on importation to this country, presents many features similar to human tubercle. With the assistance of Dr. Little in old times, and, recently, with that of Dr. Macalister, I have dissected upwards of a hundred large cats, lions, tigers, leopards, pumas, and jaguars, and we never got a single case of lung disease that could be deemed tubercle. These animals die of two distinct forms of disease, as far as my experience goes. They die either of pure pneumonia, affecting generally only a small portion of the lung, sometimes not larger than a Seville orange; yet that small amount of consolidation kills the lion or tiger. Observations were first made on the point in the London gardens; and my attention was directed to the researches of Dr. Crisp and other London observers, who found that when these animals died of pure pneumonia, they were capable of enduring a very small amount of it. The progress of the disease is very rapid, and they die within about seven

days from the time when they first show the distress in breathing. Sometimes they die of pure pneumonia, and sometimes the pneumonia appears to be symptomatic of fever—a mysterious kind of putrid fever, which the Germans call miltzbrand. It is accompanied by a purulent condition of the kidneys, and a complete softening down of the liver. In some cases, especially those of tigers, the animal lives about seven or eight days after it has been attacked with the fever. Ulcer spots form here and there on the skin, and the kidneys are always found to be in a state of purulent degeneration. In the case recently examined, the entire substance of the kidney was destroyed, except a portion of the cortical, the whole centre of the kidney being a mass of pus, and this occurred within six or seven days. The animal was a lioness, which had been imported from the Cape, at considerable expense, for the purpose of crossing her with our old lion. Our breed of lions had died out, and we were most anxious to obtain a fresh female direct from Africa. This was the second animal that we lost; and although, of course, a great deal would be gained by introducing a fresh healthy lioness from Africa, we ran great risks in the endeavour to carry out the process of acclimatisation. The animals born and bred in Europe are healthier than those brought immediately from their native wilds, because their ancestors have been acclimatised; and, therefore, they have a much better chance of living. This was a very fine lioness; but she never seemed to have the appetite that she ought to have had. About two months ago, or a little more, she was seized with an affection which I thought at first was pneumonia, from the rapid flank breathing, and other appearances of distress. But when she did not die at the end of the week I knew that it was not pneumonia she had. Her appetite continued and she did not lose it until three days before her death, and was able to eat pigeons, rabbits, goats, and all other possible luxuries that we could get for her, without suffering much pain. But during the three days before her death the poor creature suffered very much. Dr. Macalister, Dr. Little, and Dr. MacSwiney, were present at the *post mortem* examination, but I was not. Dr. Macalister reports that he never before met with a case of the kind. The lung was perfectly hard and consolidated, and presented an appearance quite different from that of the soft pneumonic spots that we had been previously accustomed to meet with. Dr. Little made a partial examination of the diseased structure, and I believe he is of opinion that it is true tubercle. It is the first case of the death of one of these animals from tubercle that has come under my notice. I have ascertained that, in the former cases of death of these animals, the disease was not true tubercle, but pneumonia. I wish to mention, in connexion with this case, an interesting fact with respect to monkeys. It was long believed, on the authority of Graves and others, that monkeys, in the Dublin gardens, died of tubercle; but on dissecting a great number of

them I found that they had died of scurvy. I found purpuric spots in the kidneys, pericardium, and heart, which proved that the cause of death was internal purpuric scurvy. I attributed this to their bread and milk diet, and accordingly we stopped it, and gave them fruit and fish; and from that moment the mortality stopped. I believe there are no zoological gardens in the world in which the monkeys are healthier and live longer than they do in ours. The case now submitted shows the necessity for careful *post mortem* examinations of these animals before coming to hasty conclusions as to the causes of their death. It would appear, at first sight, to be natural to suppose that they died of phthisis, but that is a mistake.—*Feb. 23, 1878.*

Enteritis.—DR. J. W. MOORE brought forward an example of enteritis as distinguished from typhoid fever. On the 21st of February the patient, a young man of twenty-one years of age, was admitted into the Meath Hospital. He was unmarried; a carpenter by occupation. He had been ill since the 16th of February (Sunday), on the evening of which day he had taken a very copious meal of pig's cheek and cabbage. He did not feel well on Monday; and, unfortunately, on Monday evening he feasted heartily on pork, followed by black pudding, oranges, and six or seven pints of porter. At eleven o'clock that night he felt decidedly unwell, and with a view of getting over his approaching illness he drank a tumblerful of senna tea. Next morning he felt still worse, and was attacked with violent pain in the stomach. To cure this he took a glass of malt hot, but found that the whiskey increased the pain. He was now attacked with a shivering fit, his bowels having been only slightly moved after the senna tea. He drank a wineglassful of castor oil, after which he had three motions. A mustard poultice had to be applied to his abdomen; and he was so much worse on Wednesday that he sought for admission into the hospital on Thursday morning. At that time he was suffering from intense pain in the bottom of the abdomen. He had no difficulty in passing water. His temperature was 103°; his pulse 80; his respirations 24 in a minute, and his urine contained albumen. He had very much the aspect of a patient at the end of the first stage of typhoid fever. There was, however, distinct evidence of subacute peritonitis; and he was also vomiting, and complained that nothing would stay on his stomach. His abdomen was tense, full, and tender on pressure. The history of his case pointed to violent gastro-enteritis from the unfortunate combination of diet and means of attempted cure. The only point about him that led us to suspect possible typhoid fever was the presence of a few *taches bleuâtres* on his chest, which were very well marked; but there were no rose spots—indeed it would have been too soon for them to appear. During the next day or two his temperature became nearly normal, and his pulse

was not much over 84. In two days, however, it rose to 100. The motions from his bowels were very copious when he first came to hospital, but after forty-eight hours they ceased altogether. From that day until his death, which took place five days subsequently, we could not get his bowels to act even by enemata. His pulse gradually failed, although his heart continued to beat strongly. His breathing became more and more completely thoracic. His abdomen lay motionless, and had become more or less doughy to the feel, while it was also tumid and very tender on pressure. Yesterday morning he was exactly like a patient dying of cholera. His eyes were sunken, and had dark circles round them; his extremities were icy cold, and his features blue and pinched. He died at twelve o'clock yesterday. All the organs in his body were found to be perfectly healthy except the intestinal tube. The stomach, duodenum, jejunum, and the upper part of the ileum were ballooned and projected in a large mass, the ileum resembling a very largely distended colon. This was the case down to a certain point at which there was a small round hole in the intestinal wall, through which a large quantity of fluid fæcal matter had escaped into the peritoneal cavity. A little below this point the ileum was completely collapsed. It was exceedingly vascular; and the external surface of the peritoneum was fringed with deposits of recent lymph. This fairly represents the extremely hyperæmic condition of the ileum towards the lower end. The colon was in a similar condition. It is interesting to observe, however, that Peyer's patches immediately above the ileo-cæcal valve are apparently quite healthy, and very well marked. The temperature chart is not at all like that of typhoid fever, except during the first two days; and I think the appearance of Peyer's patches immediately above the ileo-cæcal valve is conclusive against the affection having been typhoid fever. During the last few hours of his life he had stercoraceous vomiting; and after his death, when the upper part of the intestine was opened, immense quantities of fluid fæcal matter, in which there were some scybala, escaped. His death occurred on the twelfth day of his illness. The perforation was above the seat of the congestion. There did not appear to be any twisting of the gut, but there was a great amount of intussusception at the point where the gut became narrowed, and we looked on the case as one in which there was inflammation of the lower part of the bowel followed by paralysis and consequent obstruction.—*March 2, 1878.*

Scrofulous Ulceration of the Integument.—DR. BENNETT said: I have to show a specimen of a very remarkable ulceration of the leg and foot. The patient was a young man of about twenty-five years of age, or perhaps older, and had been for many years suffering from disease of the left lower extremity, commencing, as far as I could make out from him, somewhere about eight or ten years ago. It commenced in the toes, and

whatever the nature of it was, one or more of the toes were amputated in the Meath Hospital. I do not know whether others were not afterwards amputated according as the disease extended. At all events the amputations were confined to the toes; and the disease did not extend up to the metatarsal bones. He states that about two years ago, or thereabouts, he was going on crutches in consequence of the uselessness of his foot, when he slipped and fell down into a cellar or some such place, in consequence of his crutch failing him, and that his ankle was dislocated; but no reliance can be placed upon the exactness of this part of his history of what occurred. There is no doubt, however, that from that time the disease progressed very rapidly in his limb. A short time ago he was sent to me, and the position of the diseased limb was then most characteristic. The knee was bent upon the femur, and the femur flexed upon the pelvis, so that he carried the diseased limb right across the abdomen, and walked on crutches, with the sole of the diseased limb close to his face. He was bent in the back, and was altogether a miserable looking object. The diseased limb itself was abominably fœtid, and there flowed a considerable discharge from it. It was coated over with an incrustation composed of dried secretion, bits of lint, and patches of dressing which he had obtained from one hospital or another, lying one upon the other in regular geological strata; and from this proceeded a horrible fœtor. He was greatly emaciated; and he had also an indurated cicatrix on the forehead which suggested exfoliation of the frontal bone. The appearance of his nose suggested, too, the idea of syphilis; but there were no other grounds in the case in support of a syphilitic theory. His head was abnormally large, and was not unlike what some refer to a type of struma. He never had any syphilitic disease, or any disease except what may be described as scrofula. His chest was also sound. There was one feature, however, which at first made me loath to undertake amputation—namely, a considerable amount of albumen in his urine, the density of which was from 1005 to 1010. It was as low as 1005 in the morning. In consequence of the stench from his limb and frequent hæmorrhages, neither his own relatives nor anybody else could give him employment; and he urged that the limb should be amputated. My colleagues and myself, after consultation, agreed that amputation would be the least of the evils that could happen; and I accordingly amputated the thigh yesterday by such a method as I found best adapted to the case, and to guard against ulceration. Taking the amputated part from above downwards, the femur is pretty free of change, considering that for eight or ten years it has not borne the weight of the man's body. It is filled with soft diffuent marrow, which can be readily pressed out of it. It sawed with great facility, and we had to be very cautious for fear of fracture. In the amputation the bleeding was controlled by Esmarch's bandage, but we had to tie not only the femoral

artery but also the femoral vein, in consequence of the bleeding from it when he vomited from the ether. The femoral was the only artery tied; one other vessel was secured by torsion. In the knee-joint there is absorption of the cartilages from want of use, but it is otherwise perfectly healthy. There was no ulceration of the cartilages. As we go down the limb a curious condition of affairs presents itself. The whole surface is ulcerated, but the ulceration does not penetrate to any depth. The skin of the sole of the foot is in folds, and there is nowhere a sinus. At the place where the deepest excavation of the leg occurs, at either side of the tendo Achillis, I expected to find a channel leading into the deep structures, but none exists. The sole of the foot is bent completely in a line with the back of the leg. At the great toe there is ulceration exposing the bone, as if the result of friction of the end of the limb against the patient's clothes, and the phalanx of the great toe is exposed on the surface, but without any tendency to exfoliate. In front of the limb there is a condition which I have never seen before. On making a section of the skin I find that there is no distinction between it and the fasciæ. The whole structures covering the bone down to the periosteum form a sort of rind which you can peel off without section, leaving the bone perfectly smooth and bare. Still there is no necrosis of the bone. This condensation of all the tissues—bone, skin, periosteum, and all into one—is a condition which I am not familiar with. The softness of it was such that no suture passed into the diseased structure would hold the flaps. On making a section to examine the ankle-joint, and carrying the knife through the skin, I found that I had already entered the bones. I can peel the skin off the bones of the foot as I would the rind off a plum; and everything on the bone strips into the one piece. The tissues are all converted into this rind down to the periosteum; and then we have a very fair bone which is perfectly smooth; its cancelli are filled with fat. This fatty degeneration exists up the leg. All the joints of the tarsus are destroyed. This condition of the joints from disuse, and their destruction from disuse, has been repeatedly seen before, and is a point which was long ago demonstrated by Cloquet. The entire substitution of the bone by this fatty matter is, however, the most extreme instance of atrophy from disuse that I have seen. The condensation of tissues is also curious; you can cut through them, and in places distinguish their divisions in the section, but you cannot dissect them asunder. I do not know what to call the disease except it be a scrofulous ulceration of the skin. There is not a trace of true medullary tissue in any part of the bones of the leg and foot except at the os calcis, and a little bit of the posterior aspect of the tibia above the joint. All the rest has been converted into fat. While this fatty degeneration of the bones of the foot and of the lower part of the leg exists, we are struck, on applying the saw higher up, by the

extreme density of the bone. The portion of it near the knee-joint is enormously heavy. The middle portion of the leg bone is also excessively heavy considering its size, while the lower end of it is in a condition of fatty degeneration similar to that of the bones of the foot. Looking at the section where the saw passed through the bone, we find the tibia and the fibula, especially at the lower end close to the ankle, perfectly solid, and with that we have an extremely rugged and irregular condition of the bone. My reading of the case is that chronic osteitis was set up in the bones of the leg, and that it extended as far as the knee, and led to the usual density and hypertrophy of the bones occurring in osteitis, and superinduced by the condition of ulceration at the surface. As disuse of the limb supervened from the combination of those two things, fatty degeneration of the bone progressed from below upwards. It was a case primarily of osteitis leading to deformity, and provoking by its existence a condition of ulceration of the integuments. Subsequently to that, and as the deformity assumed a fixed character, the degeneration from disuse began to set in, destroying the bones of the tarsus and the metatarsus, and the lower segments of the leg. The upper segment of the leg has not been affected by it. I believe that to be the only plausible explanation of affairs.—*March 9, 1878.*

Deformity of Ureter.—MR. F. T. PORTER said: This is a specimen of a kidney with two ureters, which was removed from a male subject, about thirty years of age, in the Ledwich School. The two unite in one trunk at about an inch from the entrance to the bladder. One comes off in a normal position, and the supernumerary one appears to come off towards the upper end, and its orifice is plugged with fat. There appears to be a good deal of fatty degeneration about it. The capsule was very loose, and there are traces of what I thought might be Bright's disease. The liver was very extensively diseased, and presented the appearances of alcoholic liver. The lungs were in a state of pneumonia. The ureter in the opposite kidney was quite normal. I think I have only seen one other case of double ureter. The supernumerary ureter does not communicate with the other either by the pelvis or otherwise until it gets near the common trunk—in fact, it seems to have cut off a portion of the kidney to itself. The ureter at the opposite side was single.—*March 23, 1878.*

CLINICAL RECORDS.

Aneurism of the Abdominal Aorta Successfully treated by Position, in a period of recumbence of seven weeks. By JOLLIFFE TUFNELL, M.R.I.A., Consulting Surgeon to the City of Dublin Hospital.

A. B., aged nineteen, a tall, delicate young man, who had recently suffered from primary and secondary symptoms, and been under a mercurial course, consulted me, upon the 7th of April last, for "a painful beating in his belly." He was engaged in the victualling business, and the history which he gave of his case cannot, I think, be better detailed than in the words of the patient himself, as taken down at the time. He said—"Five weeks ago I was working in the shop when an explosion of gas took place in the cellar underneath, and I was blown up to the ceiling; I was stunned and a good deal hurt, but I went to work again after a day or two. A week after this I was shoving up a side of beef, a man being on a ladder to put a hook into the beef; I pushed up the beef as well as I was able, but it *came back upon me*, and I had to let it down again. I felt at the time greatly exhausted, and had to rest for a while; I then tried again, and at last, after a very great struggle, got up the side of beef upon the hook. I did not feel any great pain then, but I was quite faint and very tired. Some days after, as I was going to work, I felt a great pain in my stomach, and a shivering came over me; I worked on, however, for a fortnight after this, until I was unable any longer to bear the pain. I now noticed the beating in my belly, and a throbbing, and it became very sore to the touch."

Upon examination of the abdomen, pulsation was evident to the eye, to the left of the median line, mid-distance between the umbilicus and cartilage of the ribs on the left side. Upon placing the patient on his back, a tumour, circular in form, with a distensile pulsation of two inches in each direction, could be almost grasped. The pulsation was accompanied by *bruit de souffle*, audible both to the unaided ear and by the stethoscope when the patient was recumbent, but the bruit was totally lost as soon as he stood erect. Dr. Gordon, President of the King and Queen's College of Physicians, saw him, in consultation, a day or two afterwards, and the condition at that date was precisely the same as on the 7th—the patient, in the meanwhile, having been kept quietly in bed. Regular recumbence was not, however, commenced until the 12th of April, by which date a water-bed had been procured, and it was now continued without the

patient once moving from the horizontal position till the 26th of May, when he was allowed to sit up, and upon the 1st of June to go out for a drive, which he continued to do daily.

No medicine of any kind was taken during the period of recumbence, and the only medicament employed was a turpentine and assafoetida enema administered upon the 30th of April, which brought away a very large number of scybala, whose collection and retention in the abdomen were causing uneasiness to the patient.

The pain, so severe at first, and which was dependent upon the tension of the aneurismal sac, subsided very rapidly—indeed in a few days after lying horizontal. The sacrum never had the slightest blush or uneasiness from pressure in lying, floatation upon water entirely obviating both. Upon the 9th of June the patient went out of town for change of air, but came in again upon the 14th for examination. No bruit or dilating tumour could now be found—upon the most careful auscultation and manipulation—by either Dr. Gordon or myself, and no aortic symptom beyond a fulness at the spot where the aneurism had existed. The origin of the aneurism I attribute to the intense strain put upon the coats of the aorta when endeavouring to push up the side of beef, the spine being then strongly bent backwards, and in the most favourable position to cause a tear of the inner and middle layers of the vessel, and I do not refer it in any way to the contusions following upon the explosion of gas.

ERUPTION AFTER CANNABIS INDICA.

DR. HYDE, of Chicago, reports (*New York Med. Rec.*, May 11, 1878) an interesting case of universally disseminated vesicular efflorescence appearing the morning after an evening dose of one grain of this drug. The vesicles varied in size from a pin point to a small split pea. It was accompanied by a very slight itching, and by no marked dermatitis. The eruption subsided in a few days without bursting, leaving a light desquamative crust of a yellowish-red hue.

BORACIC ACID IN SKIN DISEASES.

NEUMANN (*Centralbl. f. Chir.*, No. 8, 1878) has employed boracic acid, sometimes alone, sometimes in connexion with oil of cloves, in the fluid form and in ointments. In pityriasis versicolor and tinea tonsurans, alcoholic solutions, 10 : 300 with 2.50 ol. caryophylli, and 20 : 300 with 3.0 ol. caryophylli, have been used. In pityriasis rubra and all varieties of eczema the acid has been employed in the form of ointments of 10 : 50. Neumann considers the remedy a valuable one.—*Phil. Med. Times.*

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, M.D., F.K.Q.C.P.

VITAL STATISTICS

*Of Eight Large Towns in Ireland, for Four Weeks ending Saturday,
June 15, 1878.*

Towns	Population in 1871	Births Registered	Deaths Registered	DEATHS FROM ZYMOTIC DISEASES								Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea		
Dublin, -	314,666	772	675	67	5	7	2	34	23	12	27·9	
Belfast, -	182,082	531	336	9	2	9	—	7	9	9	24·0	
Cork, -	91,965	240	186	—	—	—	—	5	—	3	26·3	
Limerick, -	44,209	114	74	—	—	—	—	1	1	3	21·5	
Derry, -	30,884	69	43	—	—	—	—	—	4	—	18·0	
Waterford, -	30,626	78	80	—	1	—	—	1	5	2	34·3	
Galway, -	19,692	43	49	—	—	—	—	2	2	—	32·3	
Sligo, -	17,285	37	26	—	2	—	—	1	—	—	19·5	

Remarks.

Waterford, Galway, and Dublin, show a very high rate of mortality during this period. In Cork and Belfast the rate was rather high. In the remaining towns it was moderate or low. The death-rate was 20·4 per 1,000 of the population annually in London, 22·3 in Edinburgh, and 24·3 in Glasgow. In Dublin, if the deaths of persons admitted into public institutions from localities outside the registration district are omitted, the rate of mortality falls to 27·0 per 1,000; but within the municipal boundary it was 29·2. Zymotic affections were again far more fatal than usual—they caused 182 deaths, while the average number in the corresponding period of the previous ten years was 107. Small-pox and whooping-cough were nearly as fatal as in the preceding four weeks, when the deaths due to these diseases were 71 and 42 respectively. At the close of the period 258 cases of small-pox were under treatment in the Dublin hospitals (including the temporary Union Hospitals). Of the 23 deaths from fever, 9 were ascribed to typhus, 12 to typhoid, and 2 to continued fever of undetermined type. Small-pox caused 9 deaths

in Belfast—more than double the number returned in the previous four weeks. The epidemic of this disease in London is subsiding quickly, the deaths there being 149, compared with 219 and 241 in the two preceding periods respectively. The advent of summer is telling on the general death-rate, but especially on that from diseases of the breathing organs, although the latter continue to be much more fatal than usual. In Dublin this class of affections caused 121 deaths (average of previous ten years = 94·5), including 79 from bronchitis (average = 68·4), and 24 from pneumonia (average = 18·4). In the preceding four weeks the number of deaths from all respiratory diseases had been 156; from bronchitis, 109; from pneumonia, 32.

VITAL STATISTICS

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, July 13, 1878.

Towns	Population in 1871	Births Registered	Deaths Registered	DEATHS FROM ZYMOTIC DISEASES							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea	
Dublin, -	314,666	844	601	81	2	6	3	19	24	10	24·8
Belfast, -	182,082	497	347	3	1	17	1	1	6	9	24·5
Cork, -	91,965	173	152	—	3	—	—	1	6	5	21·5
Limerick, -	44,209	98	86	—	—	—	—	—	2	4	25·3
Derry, -	30,884	38*	29*	—	—	1*	—	—	2*	—	16·0*
Waterford, -	30,626	61	67	—	1	—	—	3	1	—	28·5
Galway, -	19,692	32	36	6	—	—	—	—	3	—	23·5
Sligo, -	17,285	28	27	—	—	—	—	—	1	—	20·3

Remarks.

The mortality was high for the season in Waterford, Limerick, Dublin, and Belfast; it was moderate in the other towns. The returns for the week ending Saturday, June 22, in the case of Derry, are defective, and have, accordingly, been omitted. The death-rate was 22·1 per 1,000 of the population annually in London, 23·5 in Glasgow, and 20·0 in Edinburgh. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the death-rate in Dublin was 23·7—that within the municipal boundary being 26·2 per

* The figures for Derry refer only to the three weeks ending July 13.

1,000 annually. Zymotics were again very fatal, causing 160 deaths compared with 104, the average number for the corresponding period of the ten previous years. Whooping-cough showed a diminished fatality, while the deaths from small-pox were 14 in excess of those registered in the preceding four weeks. At the close of the period 197 cases of small-pox were under treatment in the various Dublin hospitals. There is, therefore, a marked falling-off in the number of cases under hospital treatment. Diarrhoea has not yet exhibited any decided summer increase. Of the 24 deaths from fever, 8 were ascribed to typhus, 13 to typhoid, and 3 to continued fever of undetermined type. A serious outbreak of small-pox has occurred in Galway, where *one-sixth* of all the deaths registered were due to this disease. In London small-pox caused 87 deaths, or only a little more than one-half the deaths ascribed to it in the previous four weeks—viz., 149. Scarlatina is becoming very fatal in Belfast. In Dublin respiratory affections caused 82 deaths (average of previous ten years = 70·6), including 60 from bronchitis (average = 49·1), and 14 from pneumonia (average = 12·8). Amongst the deaths registered in Dublin in the week ending July 13, was one from hydrophobia. A girl, aged five years, was bitten by a rabid dog on April 5, and died in Sir P. Dun's Hospital on July 4.

METEOROLOGY.

*Abstract of Observations made at Dublin, Lat. 53° 20' N., Long. 6° 15' W.,
for the Month of June, 1878.*

Mean Height of Barometer,	-	-	-	29·898 inches.
Maximal Height of Barometer (on 6th at 9 a.m.),	-	-	-	30·199 „
Minimal Height of Barometer (on 11th at 3 p.m.),	-	-	-	29·202 „
Mean Dry-bulb Temperature,	-	-	-	58·1°
Mean Wet-bulb Temperature,	-	-	-	55·1°
Mean Dew-point Temperature,	-	-	-	52·4°
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·394 inch.
Mean Humidity,	-	-	-	81·5 per cent.
Highest Temperature in Shade (on 26th),	-	-	-	73·6°
Lowest Temperature in Shade (on 1st),	-	-	-	42·8°
Lowest Temperature on Grass (Radiation) (on 1st),	-	-	-	37·7°
Mean Amount of Cloud,	-	-	-	72·5 per cent.
Rainfall (on 19 days),	-	-	-	5·058 inches.
General Direction of Wind,	-	-	-	S.E. and N.W.

Remarks.

The first half of the month was very wet, the second half brought with it more summer-like weather. Atmospheric depressions, of rather irregular and varying form, travelled north-eastwards or eastwards across

the United Kingdom during the first fortnight, and brought with them clouded skies and changeable weather. Nearly an inch of rain fell in Dublin during the early morning hours of the 3rd, and from 9 30 to 10 a.m. of the 9th rain fell in torrents, accompanied by thunder and lightning. In the two weeks ending Sunday, the 16th, no less than 4.492 inches of rain were registered. After the 16th the weather underwent a considerable improvement, clearer skies and a higher temperature taking the place of atmospherical disturbances and incessant rains. On the 21st a wave of heat began to pass over the country. In England the rise of temperature culminated on Wednesday, the 26th, when the thermometer in the shade rose to 91° in London and to 95° at Nottingham. In Ireland such high temperatures were not recorded, although the weather was decidedly warm. In Dublin, where more clouded skies and a grateful sea-breeze tempered the heat, the maximal shade temperature was 78.6° on the 26th. On the 23rd an extraordinary though local thunderstorm passed over London from S.W. At Camden-square, N.W., the rainfall during the storm amounted to 3.24 inches, while little or no rain fell at Kensington. In Dublin thunder was frequently heard on the 27th and 28th, and thunderstorms occurred on the 9th, 15th, and 27th. An occultation of the planet Mars by the moon occurred at 9 35 p.m. of the 3rd, but the weather was unfavourable for observing this interesting astronomical event. The rainfall of the six months ending June 30 was 16.238 inches on 109 days. Of this amount nearly three-fourths (11.948 inches) fell in the months of April, May, and June; and considerably more than one-half (9.598 inches) in the months of May and June.

ERRATUM.—In the Abstract of Meteorological Observations for April, 1878, Vol. LXV., page 555, the Mean Amount of Cloud should be "52.8 per cent.," not "47.8 per cent.," as printed.—J. W. M.

ERUCTIONS, A SYMPTOM OF THORACIC ANEURISM.

A CASE of aneurism of the descending portion of the arch of the aorta is reported by Dr. Knight (*Boston Med. & Surg. Jour.*, May 9), in which "very distressing eructions" were a marked symptom. Eructions have been referred to by Atlee in the *American Journal*, July, 1869, as a valuable sign of thoracic aneurism, the symptom being produced by pressure on pneumogastric fibres. In a case Atlee reports, in which this was the only symptom, and in which no diagnosis was made, a small aneurism was found just in the same position as that in the case above referred to.

PERISCOPE.

Edited by G. F. DUFFEY, M.D., F.K.Q.C.P.

ELECTRICAL TREATMENT OF IMPOTENCE AND SPERMATORRHOEA.

At the recent meeting of the American Medical Association, Dr. G. M. Beard, of New York, read a paper on this subject, the practical points in which were as follows:—"1. That in the electrical treatment of *seminal emissions* mild currents should be used and short applications; strong currents and long applications were liable to produce irritation. He preferred the ordinary steel sound as an electrode instead of the 'urethral electrode.' 2. In the electrical treatment of *impotence* a strong current might be used, faradic or galvanic, but usually the faradic was preferable. In cases of anæsthesia of the parts, the faradic current might be used with the wire brush. 3. Where the impotence or spermatorrhœa had produced general debility, either central or general galvanisation might be used in connexion with local treatment. The galvanic current should not be used within the urethra, as it might produce too much chemical action. 4. The cooling catheter, the so-called Winternitz sound, was an excellent adjuvant and positive addition to our methods of treatment of these affections. It was an instrument so constructed that water could be poured into one end of a tube, and running the entire length of the sound, returned and was emptied at the other. He connected the catheter with a Potter's hydrostatic bag, and used water having a temperature of 40° or 50° F. The effect of the cooling application was to contract the urethra so that the instrument was removed with some difficulty. The applications could be continued from five to seven minutes. In some cases he connected a similar arrangement for the rectum. Instead of the hydrostatic bag an ordinary Davidson's syringe might be used for injecting the water. 5. Dr. Beard spoke of Johnson's electric self-monitor. He was not able to say how much value the device possessed. Generally all those devices had been failures, and the fear was, with reference to Johnson's apparatus, that it would prove to be an irritant. In brief, the monitor consisted of an electric battery and connexions so arranged that a shock was given when a ring was opened by the erected penis. 6. Treatment by the alternate use of hot and cold applications, such as flannels wrung out of hot and cold water, to the perineum and upon the back where the pain was located. 7. Internal treatment consisted in the use of gelsemium, bromide of camphor, ergotin, and lupulin. Gelsemium alone was of more value than was usually supposed. A pill made up somewhat as follows might be used:—

R. Gelsemium, $\frac{1}{8}$ gr.; bromide of camphor, $1\frac{1}{2}$ grs.; ergotin and lupulin $\bar{a}\bar{a}$, $\frac{3}{4}$ gr. He sometimes used bromide of zinc and valerianate of zinc combined, $\bar{a}\bar{a}$ gr. i., given in form of pill, and gradually increasing the dose. 8. Hygienic treatment. Dr. Beard thought that the absolute-rest treatment was sometimes carried too far in these cases, and that a little exercise might be beneficial. 9. Prognosis in spermatorrhœa was not so good as in impotence, although in the great majority of all the cases recovery took place."

SPINAL RESPIRATORY CENTRES.

DR. LAUTENBACH, as a result of numerous experiments, concludes that besides the respiratory centre or centres in the medulla oblongata, there exist in the spinal cord nervous mechanisms which may keep up the respiratory movements after the destruction of the former.—*Philadelphia Med. Times*, May 11.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

WE have received from Messrs. H. K. Edge & Co., of 34, King William-street, London, E.C., a neat little medicine chest, containing samples of globules invented by Mons. C. Thevenot, of the Société de Pharmacie of Paris, and lately brought to a great degree of perfection in this country. The principal advantages claimed for this novel form of administration of drugs in the orthodox practice of medicine are as follows:—1. The most volatile substances can be accurately dosed and preserved for an indefinite period. 2. The efficacy of the medicine is increased by its divisional action on the membrane of the stomach. 3. The globule, unlike the pill, does not become stale, hard, and gritty, whereby particles are apt to adhere to the mucous membrane, and fatigue and irritate the stomach. 4. The medicament is pure and unadulterated by the foreign substances necessary to other modes of administration. 5. The case being made of pure vegetable gum—not gelatine, as in capsules—is perfectly soluble and digestible. 6. The medicament is conveyed without taste, flavour, or smell; many medicines can be used in globules which their nauseous nature would make repulsive in any other form. 7. The doses are accurate; the medicines are the best and purest. 8. The prices are within the reach of all.

Among the samples submitted to us, and which we have tested, are globules of bromide of potassium, iodide of potassium, jaborandi, subnitrate of bismuth, carbonate of iron and rhubarb, &c. Each globule contains three grains of the medicine. The chest is also furnished with a box of Grimault's mustard leaves, and two specimens of Kip's ingenious cartridges for the immediate dressing of wounds.

STEPHEN'S-GREEN BATHS, DUBLIN.

THROUGH the courtesy of Mr. Shields, the energetic and efficient manager, we have had an opportunity of visiting and minutely inspecting the arrangements of the new baths lately erected on the west side of Stephen's-green, Dublin, in close proximity to the Royal College of Surgeons.

As physicians in Dublin and throughout Ireland are often at a loss to know where to send their patients for the purpose of getting medicated and other special baths, the following brief description of the establishment in Stephen's-green will not be uninteresting to the readers of this Journal.

On entering the spacious premises, the visitor passes into a long corridor, off which are six ordinary hot or cold baths, each furnished with all the modern improvements, and with Dr. Butler's patent arrangement for shower-bath.

In an apartment adjoining these bath-rooms are a running sitz-bath, a foot-spray, and a seat-spray, all of which are so arranged as to be regulated by the bather himself. The running sitz-bath is useful in cases of lumbar pains and of obstinate constipation. It can be borne for ten or twelve minutes. The foot-spray is used in certain cases of headache as a derivative, and the seat-spray is recommended in hæmorrhoids.

Next to these are two apartments. In one of them is an admirably designed Russian vapour-bath, and in the other—closely adjoining—are an ordinary shower, a needle-bath, and a box vapour-bath. The action of the needle-bath is stimulant.

Two magneto-electric baths are next met with. We hope that facilities will shortly be afforded for giving other forms of electrical baths, when so ordered by a physician.

A "Private" Bath, which can be occupied by one or more persons on giving a day's notice, attracts attention as the visitor passes on towards the "Refreshment Bar," where bathers can obtain soups, &c., in winter; coffee, a glass of wine and biscuits, &c., at all seasons.

Beyond the refreshment bar we enter the "Cooling-room" of the Turkish Baths. It is elegantly fitted up, and contains a room for the chiropodist and the hairdresser. At the far end of it is the plunge, 4 ft. 6 ins. in depth, in which the water is kept constantly running by means of perforated pipes, which have all the effect of a shower-bath as well. We may mention that the wire-woven mattresses are from the firm of Messrs. Fleming, of Dawson-street, Dublin, who also supplied

the upholstery. The felt pieces for reclining struck us as being very cleanly. In the gallery surrounding the Cooling-room are a series of very comfortable and commodious dressing-rooms.

From the "Cooling-room" we pass into the "Shampooing-room," with a temperature of 126° Fahr. The shampooing-room is also furnished with electrodes, connected with the magneto-electric apparatus. At the far end of this apartment are the "Hot-chambers," with temperatures of 184° and 250° Fahr. respectively. The system of ventilation in these warm rooms is perfect. The fresh air is first taken from without at a height of some 40 feet above the ground, and conducted through two large pipes to the furnace, round which it is distributed and heated. It is then conducted through perforated porcelain walls into the hottest room of all, from which it passes in a gentle current into the other hot rooms, finally escaping *downwards* through pipes set in the floor.

The "Ladies' Baths" are constructed on the same plan, but on a smaller scale. Connected with them are a comfortable drawing-room and a small and select library.

In the basement storey are the laundry and drying-rooms, which are constructed on the most approved modern principles. The wet, soiled linen is lowered from the bath-rooms by means of a lift.

All the rooms are beautifully painted, and the floors and walls are, in most cases, tiled. The painting has been executed by Messrs. Gibson, of Dublin; the tiles have been laid down by Messrs. Monsell and Mitchell; and to Messrs. Curtis & Son, of Dublin, belongs the credit of the admirable system of drainage, plumbing, and gas-fitting.

In conclusion, it is well to mention that mineral baths—of nitro-hydrochloric acid, iodine, sulphide of potassium, &c.—as prescribed by physicians, will be given under the direct superintendence of the manager, Mr. Shields, to whom we again wish to express our acknowledgments for the trouble he took in conducting us over the Baths.

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OF

MEDICAL SCIENCE.

SEPTEMBER 2, 1878.

PART I.

ORIGINAL COMMUNICATIONS.

ART. V.—*On Emigration to the River Plats as a Means of Cure or Arrest in Incipient Phthisis.* By ARTHUR E. LEESON, M.A., M.D., Dub.; Visiting Physician to the Infirmary for Diseases of the Chest, Margaret-street, London.

EMIGRATION to more genial climates, and that on a large scale, has been practised for the last thirty-years as a means of curing or of arresting phthisis. Few physicians who have seen much of this disease but can record numerous instances in which a valuable life was thus saved, or an existence not bereft of usefulness and enjoyment prolonged to a much longer term than would have been possible in this country. Anything like accurate knowledge of the proportion which the fortunate cases bear to the whole is, of course, not to be obtained, although the main stream of this kind of emigration was directed to our own colonies—New Zealand, Australia, and the Cape—in all which countries there is no lack of intelligent medical practitioners, whose experience would be invaluable to us were it methodically and systematically recorded. From time to time, it is true, colonial practitioners favour us with some communications on this subject, and latterly I have observed a great change in their tone. At first our account from the colonies as to the effect of their climates on chest disease was encouraging to a high degree. Latterly, however, we have received from all

sides warnings to send out none but carefully selected cases; we are told that phthisis is almost as common in all these places as at home, &c. But with regard to all these reports it must be said that they are too vague to be of any use. I have before me a Report on the Prevalence of Phthisis in the Colony of Victoria, drawn up by four medical practitioners at, I believe, the request of the Medical Society there. From this it would appear that in the capital 25, in the rural districts 12, per 10,000 of the living population, die of phthisis—a proportion which at first would seem fatal to the pretensions of the colony to be a sanitarium for chest diseases. There are agricultural districts in England and Ireland in which the proportion of deaths from phthisis is not more than 12 per 10,000 of the living population. But the population of Victoria contains a large number of persons who went there for the sake of their health—many of them in the last stage of consumption. Here is one source of fallacy. Again, are there no classes of the Australian population placed in such bad hygienic conditions as to counterbalance any advantages which can be derived from the climate? It may be safely assumed that this is true of the Chinese immigrants, whose habits of overcrowding, neglect of the simplest rules of hygiene, and, from their extraordinary parsimony, scanty and indifferent food, are well known. On these points the Report above referred to is silent. One fact of importance is incidentally mentioned—that according as the native-born Australians have increased in proportion to the immigrants, the mortality from phthisis has diminished. Now, in the face of this and similar discouraging reports, one thing, as the Germans say, stands fast, that not only do we continually meet persons who have been sent to the colonies by competent authorities for phthisical disease, and who, after some years, have returned, to all appearance, in good health, but almost every returned Australian and New Zealander has one or more such cases to relate. I am not now treating of these colonies, but must record my impression that just as the curative effect of their climates was formerly overrated, so the reaction in the public and, above all, in the medical mind, which has latterly taken place in their regard, is exaggerated.

I shall now invite the attention of those interested in this subject to the Continent of South America, and to that part of it vaguely called the River Plate, but which shall here denote the southern provinces of the Argentine Republic and the entire Republic of Uruguay, sometimes called Banda Oriental. The capital of the

former is the city of Buenos Ayres, situated in the province of the same name, these containing together a population of 700,000, 200,000 of whom, or more, inhabit the city. The capital of Uruguay is Monte Video, with a population of 60,000; about 300,000 inhabit the rural districts of the Republic, whose territory reaches to the southern boundary of Brazil. The population of these countries is mainly of Spanish extraction, largely mingled with the aboriginal Indian. The African element is trifling, but a large European one from other countries than Spain has been added during the last thirty years. The larger portion of these are Italians, but there are considerable colonies of English, Irish, and Germans. The climate of this country may be taken as a typical example of those called warm-temperate, and may be roughly compared to that of Portugal. Neither summer heat nor winter cold, however, is so great as in the latter country, as will appear at once from the character of the vegetation. The olive, the orange, and the lemon are all domesticated in the Plate, but though the trees flourish, the summer heat is not sufficient to bring any of these fruits to perfection; and though a few scattered palms are to be seen in sheltered places, they are sickly specimens. On the other hand, during a residence of fifteen years I never saw snow, nor did I ever know it to freeze in the daytime—a frosty night being invariably followed by a clear day, during which the sun shines with a power which may be expected in the latitude 30° to 35° . This equability is mainly due to the narrowness of the Continent of South America at this part, and the extent to which it is immersed in the ocean. The climate, in fact, partakes of the character of the marine or insular. My knowledge of the country dates from the year 1855, from which time, till 1870, I resided and practised there. Then, as now, I was much interested in the subject of consumption, and endeavoured to acquire some exact information as to the prevalence of this disease amongst the population in general, and the various races and classes in particular. There was at that time no registration of deaths in any part of the country. It was only in 1868 that this was established, and then only for the province and city of Buenos Ayres. I am thus unable to bring forward any formal statistics prior to this date to illustrate the points I wish to establish. Although prior to 1868 I had no means of judging of the amount to which phthisis prevailed amongst the general population, it was not long before I felt convinced that it was in a great degree confined to the natives

and to the immigrants from the South of Europe. I judged from the following, to me, convincing proofs. The rural districts of the province of Buenos Ayres contained some eight or ten thousand Irish, almost exclusively engaged in sheep-farming. The vast majority of these were my patients, and I was accurately acquainted with the state of health of the whole community. Now, with the exception of a few cases of neglected pneumonia (chiefly amongst the intemperate), which had become chronic, and terminated in a group of symptoms which might be fairly classed as phthisis, I never saw one single case of this disease amongst this large number of persons. The few cases I saw amongst English or Irish were amongst the inhabitants of the city. So much for the Irish—now for the Germans. In 1861 I was elected physician to the German Krankenverein or Sick Union, and continued to act in that capacity till 1867. The members—seven or eight hundred in number—were all artisans or small traders, and inhabitants of the city. Amongst all these I knew of but five or six consumptives, and but two died during my period of office. The Germans of the town were thus almost as free from phthisis as the Irish of the country. Buenos Ayres was then a very healthy city, and especially free from chest diseases. This arose from the plan on which it was built, and the construction of the houses. The streets, all of good width, intersect one another at right angles, each block being entire, without lanes or alleys. The houses, at that time almost all of one story, are built in the old Roman style, all the rooms opening into a succession of open court-yards, and seldom have any covered passages. A house of this description, if of one story, enjoys a maximum of light and air, and such a town must cover a large extent of ground in proportion to its population. In fact, Buenos Ayres was then as large as Dublin, with the population of Cork. Latterly, however, things have changed rapidly for the worse. The immense increase in emigration from Europe, and the great development of the trade of the city have led to a greater economy of ground, and consequently to the construction of vast numbers of houses of many stories, the lower parts of which, often densely crowded, are insufficiently supplied with light and air. The effect of this on the health of the city has been disastrous. Within the short period of seven years it was visited by two epidemics of cholera, and a like number of yellow fever. The latter carried off in one year 20,000 persons. Phthisis has likewise increased alarmingly. From the commencement of registration in

1868, till the end of 1870, it caused annually $4\frac{1}{2}$ per cent. of the total number of deaths.

In 1871	-	-	-	$2\frac{1}{2}$ per cent.
1872	-	-	-	$10\frac{1}{2}$ „
1873	-	-	-	13 „
1874	-	-	-	9 „
1875	-	-	-	$12\frac{1}{2}$ „
1876	-	-	-	$14\frac{1}{2}$ „

The low percentage in 1871 arose from the fact that it was the year of the great epidemic of yellow fever. There appears to be no increase in the rural districts, the deaths from phthisis varying from three to four per cent. of the whole number. If we rate the total mortality at 25 per mil. of living persons, or 250 per 10,000—a fair average for a pastoral community—this will give an annual mortality from phthisis of 8 per 10,000 of the living population, or one-third less than that of the rural districts of Victoria. This rapid deterioration in the health of the city commenced shortly before my departure in 1870. I visited the country again in 1875, and endeavoured to ascertain amongst what classes of the population the great increase of phthisis had taken place. I had been recommending the place hitherto to pulmonary invalids, without laying very much stress on their leading a country life, and indeed many, perhaps most, of the persons who consult me on this subject are constrained by their occupation to live in or near town. I found reason to believe that the increase had taken place mainly amongst the poorer strata of the population and in the densely over-peopled quarters of the town. Amongst the British community I observed no increase, and I took very considerable pains to ascertain the fact. I am inclined to think there has been none amongst that part of the population which lives under good hygienic conditions. During the absence of a medical friend I took charge of his practice—a very large one—for nearly two months. The patients were exclusively of the well-to-do classes inhabiting the better quarters or the suburbs of the town. Amongst upwards of two hundred persons seen by me at that time I found but four consumptives, only one of whom was in the second stage, and had been attended by me seven years before, being then phthisical.

Yellow fever has never extended beyond the cities of Buenos Ayres and Monte Video, the suburbs having remained free. In

the former immense drainage works have been constructed, which cannot fail to have a good effect on the general health. During epidemics of this kind the city is almost abandoned. The British and German merchants and shopkeepers come to town for a few hours in the day only. Those who do so seldom contract yellow fever.

From the foregoing I think I am justified in thinking that Northern Europeans transplanted to the River Plate show little proclivity to phthisis unless placed under unfavourable sanitary conditions. It is, therefore, a suitable place for those to emigrate to who show a strong tendency to the disease, hereditary or acquired.

Is it equally to be recommended where unmistakable evidences of consumption already are present? Now, *à priori* there is little doubt that conditions which are unfavourable to the development of a disease are also unfavourable to its further progress when already developed, and in no disease is it more essential to gain time than in this. I have tried, however, to bring the matter to the test of experience. I have seen, professionally or otherwise, a large number of persons who had emigrated to the Plate for chest disease. With regard to some of these I had no means of verifying the original diagnosis, while with the subsequent history of others I am not perfectly acquainted. Putting aside these, I have pretty complete histories of twenty-nine cases. I have also excluded some who arrived in a hopeless condition, and some who, though arriving rather well advanced in the second stage, have prolonged their existence to an extent which I have never seen equalled in the South of Europe. These notwithstanding, I shrink from the responsibility of advising removal to such a distance in advanced cases. Of the 29, 15 were my own patients; the rest were only casually, or not at all, seen in my professional capacity, but continually under my observation. At the end of 1876, when I compiled these statistics, 5 had died; 3 were more or less rapidly tending to the same fate; 7 had remained stationary; 14 were more or less cures—some very complete ones, while others rather approached the stationary cases.

One word about *cures* in phthisis. A man emigrates to Australia or South America, and recovers from all his pulmonary symptoms: lives for years in the country, and considers himself, and rightly, as cured—does this warrant him in returning to his own country and remaining there? This question has been put to me on more

than one occasion, but I have declined to give an opinion. I know persons who have returned in these circumstances, and who appear to expose themselves to all the vicissitudes of the climate with impunity. But I know of but too many cases of relapse after long intervals of excellent health, not to speak on the matter with the greatest reservation. Let the following case serve as an example:—A lad, aged seventeen, from an English public school, was sent to Buenos Ayres as consumptive in the year 1858. He had had considerable hæmoptysis, had lost flesh rapidly, and the right apex was the seat of considerable deposit. After loitering about the town and its suburbs for some months with only indifferent benefit, he turned sheep-farmer, and settled in a remote part of the Banda Oriental. His cure was rapid and uninterrupted. Four years later I examined him, and found not a trace of disease. For thirteen years after this he continued to enjoy perfect health, and became a very robust and powerful man. In 1876 he returned to England, and proposed to pass the winter there. Autumn was not over before he found himself attacked by a succession of slight colds. A remembrance of his former experiences induced him to consult an eminent physician, who, on examination, found matters so serious as to advise his instantaneous return to South America. Before his arrival in the River Plate his state had become most critical, but after a little he rallied, and is now fairly restored to something like his former health. This not a solitary instance.

If South America has advantages in a medical point of view, it has also one which is not of little importance. It is nearer England, and is not only easier reached, but those settled there can more easily visit Europe than if they lived in Australia. Thus the sense of expatriation is not so much felt; the patient feels himself nearer home and friends. The voyage to the River Plate is performed by the Royal Mail and Pacific Steamers in less than a month—at least a week of which is spent in the various ports touched at on the way. On the other hand, the long and dreary voyage to Australia has deterred many a patient from taking the only step that could have possibly saved him.

I shall conclude this paper with a few practical hints which may be useful to patients and their advisers.

The best time to arrive in the River Plate is in the month of September or October. The winter is then over, and, mild as it is, it had best be avoided. If practicable (and to those of independent means, or who take with them good introductions, this is easy), a

country life should be adopted, but not in circumstances which would entail much hardship or exposure. The great industry of the country is sheep-farming, and the life on a sheep-farm is the best conceivable for a pulmonary invalid—one spent almost entirely in the open air, with plain and wholesome food. But the immediate charge and tending of sheep occasionally entails great exposure and exertion, and should not be undertaken until such an improvement has taken place in the patient's state as to inspire some confidence in his powers of resistance. The greater part of our patients will, from necessity or choice, take to a town life, and fortunately they can do so without being at all affected by the growing unhealthiness of Buenos Ayres and, I have no doubt, of Monte Video. Both these places are well supplied with the means of communication. In the former four lines of railway and five tramways radiate from the city in all directions. Within a few miles a number of suburban towns have sprung up, where reside the greater portion of the British and German merchants and shopkeepers, who only come to town during business hours. Amongst these are found nearly all the cases of cured or arrested phthisis which figure in the third and fourth lines of my table of cases. The artisan (at least in certain trades) is better off than the man of business. The whole country is studded over with small, and therefore still healthy, towns, where work is easy, and pay great.

It will be perceived that in the preceding article I write in the interest of the emigrant properly so-called—that is, for the person who has to gain his livelihood, and must therefore settle permanently in the place chosen for him. It is only given to the few to pass their lives at Cannes, Nice, or Mentone, with an annual "Kur" in the high Alps. I have, of late years, had very considerable experience amongst those who have all these advantages, but the results fall far short of what we are accustomed to observe in South America. The necessity of exertion under which those find themselves who have not independent means, is, to a certain extent, not an evil, or is, at least, a less one than the *ennui* which generally besets those who pass their lives in a continual struggle to avoid death.

ART. VI.—*The Functions of the Organs of the Fœtus in Utero.*

By WILLIAM JOSIAH SMYLY, M.D., Univ. Dubl.; Assistant-Physician to the Rotunda Lying-in Hospitals, Dublin.

THE development of the various organs of the fœtus in utero are now, through the exertions of anatomists, tolerably well known, but physiologists have not been equally successful in elucidating the functions of these organs. So long as the ovum was looked upon merely as a new growth within the mother, bearing to her much the same relation as an organ of her body—"the fœtal organ," as it was termed by Joh. Müller—the subject possessed little interest. When, however, it was shown that the fœtus possessed an independent circulatory and respiratory apparatus, it became evident that it maintains a physiological existence, resembling rather that of a parasite living within, and drawing nourishment from, the body of its host, but possessing at the same time an independent power of assimilation, secretion, and heat formation.

In order, then, that not only the supply of material for nutrition and for respiration, but also that the removal of excreta should be provided for, there must be a continual interchange of substances between the mother and her offspring. To elucidate the nature of this exchange would not only be interesting as a physiological problem, but also of great practical importance, tending to explain the nature of certain contagious and hereditary diseases.

Professor Gusserow, of Strasburg, who has devoted a good deal of time and trouble to the investigation of this subject, as is known to those acquainted with its literature, has lately instituted a fresh series of experiments, and I do not think that any apology is needed on my part for reproducing in English some of the results of his investigations.

The earlier experiments, which were instituted some years ago, proved that foreign substances do pass from the mother to the ovum. The materials employed were iodide of potassium, ferrocyanide of potassium, and tincture of iodine. The lower animals were at first experimented upon. A pregnant Guinea-pig, for example, was treated with tincture of iodine until this substance could be easily detected in the urine; it was then killed, but no trace of iodine could be found either in the fœtal urine or in the liq. amnii. Dogs, rabbits, and cats were treated similarly, or the experiments were varied by the exhibition of the other substances mentioned, but without any result. It was, therefore, evident that

if these substances do pass from the parent to the embryo, the process must be a very slow one; and as prolonged experiments on the lower animals were difficult to carry out satisfactorily, further observations were made on pregnant women, to whom iodide of potassium was administered for some time before labour. The liq. amnii was carefully collected, and the child's urine drawn through a catheter, as soon after birth as possible. These experiments showed that where the drug was continued for at least fourteen days, iodine could be detected in the foetal urine, and generally in the liq. amnii also; but where its use was not continued so long, no result was obtained.

These results not only show clearly that substances do pass from the mother to the foetus, but the variable quantity of iodine found in the liq. amnii seems to cast some light upon the micturition of the latter, as will be shown. There can now be no doubt that the foetus does secrete urine, but the question of its voiding it has long been the subject of repeated investigation. The general result has been to show that it does so, and that after the second month this must take place into the liq. amnii. This seems to be confirmed by a chemical examination of the latter fluid. In thirteen out of sixteen cases in which the amniotic fluid was examined by Dr. Gusserow, urea was discovered in more or less quantity. That the urinary matter which is passed into the liq. amnii does not remain long as such is evident, for otherwise it would possess, towards the end of pregnancy, the same composition as urine; but, as in cases of retention of urine in the foetal bladder, it probably decomposes, and passes into the mother's blood. We cannot believe that liq. amnii passes directly into the mother's system in any quantity, but it is not so difficult to imagine a diffusion of the salts. In support of this it may be remarked that though the reaction of liq. amnii is generally slightly alkaline, it is often very strongly so, and ammonia has been occasionally detected in it, from which it may be inferred that, when urea is discovered in any quantity, the foetus has micturated lately, but when little or none is detected, it has probably become diffused into the mother's blood.

From this it would also appear that the urine does not flow away continually, as was supposed by Rose, but that it collects in the bladder until a sufficient irritation is conveyed to the spinal cord to cause a reflex contraction of that viscus, for otherwise the amount of urea found in the liq. amnii would be constant, and not, as is the case, variable in quantity. The question, so long dis-

puted, as to the source of the liq. amnii is certainly rendered clearer by the investigations of Dr. Gusserow, especially by those more recent experiments to which I am about to call attention. On this subject two opposing theories have been maintained—one, that the waters are derived solely from the mother; the other, that they are entirely a foetal production. The latter view, rendered probable by Scheerer's observation, "that in all ovipara the amniotic fluid is a foetal production," is that to which Dr. Gusserow adheres. He does not, however, follow Scheerer in the idea that it is a secretion from the integument during the earlier months of gestation—an opinion which is negatived by the rapid increase of the fluid at a later period. On the other hand, he considers that though its source is obscure at an early period, during the second half, at least, of pregnancy it is derived from the foetal kidneys. In support of this opinion he argues "that if the liq. amnii were merely a transudation from the foetal or maternal vessels, it should bear the characters of such a transudation; it should, therefore, contain fibrinogenous materials. I have never, however, succeeded in producing coagulation, by the addition of blood to the amniotic fluid, either of the human female or that of the lower animals; nor have I ever observed spontaneous coagulation, provided the fluid were taken quite pure. That it is almost free from white corpuscles, is also in accordance with this. Its poverty in albumen and white corpuscles, together with its incoagulability, would, of themselves, lay on one side the idea that it is the result of a mechanical œdema, even if it were not distinctly contradicted by the total absence of red cells."

Through the investigations of G. Bunge and Schmiedeberg, it has been clearly demonstrated that the conversion of benzoic into hippuric acid takes place—in the animal organism in the kidneys exclusively; that when this substance is introduced into the system it is recognisable in the blood and tissues until it has been entirely converted into hippuric acid in the kidneys; and that hippuric acid is never to be found in any quantity in other parts of the body. This remarkable discovery opened up to Prof. Gusserow a new method of prosecuting his investigations. Several pregnant women were accordingly given benzoic acid in the form of benzoate of soda, which is not unpleasant to take in a mixture. The liq. amnii was drawn off by means of a trochar and cannula, so as to avoid possible admixture with the mother's urine; and the child's urine was obtained by a catheter as soon after birth as possible—at all

events before it had taken the mother's breast. From the nature of the case, the concurrence of so many circumstances being necessary for success, it is not surprising that in only a few cases could urine and liq. amnii be obtained in proportional quantities. In three cases no hippuric acid could be detected either in the urine or waters. Such cases are, however, of little consequence, for when once hippuric acid is found in the foetal urine it shows that benzoic acid has come to the ovum through the maternal organism, and that it has been changed in the foetal kidneys. Schmiedeberg's method of analysis was employed to detect the hippuric acid, the certainty of which, even for the detection of very small quantities, is shown in the work of Bunge and Schmiedeberg. The following cases may be recorded as illustrative:—

CASE I.—A patient consumed 1 gm. of the benzoate of soda in the course of three hours; one hour and three-quarters after the last dose the waters were removed. They contained no acid; but a considerable quantity of hippuric acid was found in the child's urine.

CASE II.—A gramme and a half was administered four or five hours before the membranes ruptured, and immediately after that 0·5 gm. more. The waters contained a quantity of hippuric acid, but no benzoic acid. The small quantity of urine obtained yielded hippuric acid.

CASE III.—This patient took 0·5 gm. of the medicine two and a half hours, and repeated the dose half an hour, before the birth of the child. The waters could not be obtained. There was a small quantity of urine in the child's bladder, containing hippuric acid.

CASE IV.—A gm. of the benzoate of soda was taken during the three hours preceding the rupture of the membranes. Hippuric acid was found both in the waters and urine, and again in a second quantity of urine obtained some hours after delivery, but before the child had taken the breast.

The following deductions may be drawn from these experiments:—1st. That benzoic acid, like some other substances, passes in a somewhat short space of time from the maternal to the foetal organism, and further, that it is there converted into hippuric acid; that consequently the foetal kidneys must have the same function as after birth, and also that the foetus micturates into the bag of the waters. Finally, if a direct exchange took place between the maternal or even foetal blood and the liq. amnii, benzoic acid would invariably be found in it, as this alone circulates in both kinds of blood. No benzoic acid was ever found, but generally hippuric.

The opposite fact—namely, the passage of materials from the embryo to the mother, though rendered probable by many physiological and pathological facts, was first experimentally investigated by Dr. Savory. He opened the abdomen and uterus of a cat or rabbit, took out one or more fetuses and injected them with a strong solution of strychnia, after which they were replaced in the uterus, and the abdomen closed. The fetus which had been injected was immediately seized with spasms, and generally after about nine minutes the mother was similarly affected. These experiments were repeated by Dr. Gusserow—in a modified form, however, so as to avoid many evident sources of error. The abdomen having been opened, the uterus, which usually protruded through the wound, was seized with a pair of forceps, and a small hole torn through it. The membranes which bulged out of this small opening (if the placental site had been avoided) were not ruptured, a portion of the fetus being secured in the wound; the strychnia solution was injected, and its escape prevented by a pair of bull-dog forceps which effectually closed the small puncture made by the syringe. Altogether, twenty-four rabbits, five cats, and seven bitches were used in these experiments. The further the pregnancy had advanced, the more easily were they performed. It was often difficult to distinguish sufficiently the junction between the fetus and placenta, so as to leave undisturbed the placental circulation, especially in the commencement, whilst he still followed Savory's method of lifting the young animal completely out of the uterus and membranes. Still, even these cases, three in number, were of importance, as the mother had no spasms, nor did these occur in three other cases in which the fetus also died immediately after injection. In those cases in which the fetus remained alive a longer or shorter time in connexion with the mother—where indeed there was a possibility of an exchange of material—the mother invariably had spasms, usually in about twenty minutes after the injection of the fetus; once they did not occur until eighty-six minutes after, and once, on the other hand, as early as eleven minutes. These spasms terminated fatally in from half to three-quarters of an hour. If the same solution were injected directly into a fully-grown animal, it would be attacked with violent cramps in from three to five minutes, invariably terminating fatally. That there must, therefore, have been a gradual passage of the poison from the fetus to the mother, is evident. Although these experiments were only a repetition of Dr. Savory's,

they are free from many sources of error to which his were liable. As regarded the foetus, however, the results of these experiments were quite different, for Dr. Savory states that the foetus invariably had strychnia cramps, whereas Dr. Gusserow never observed these, and believes, on the contrary, that the embryo enjoys a peculiar immunity from the effects of this poison. Hoping to elucidate the matter more fully, Dr. Gusserow varied the experiments by injecting strychnia into the cavity of the amnion alone, and not into the foetus. This he did in ten cases, and the conclusion at which he arrived was that the passage of matter from the liq. amnii to the mother was almost nil. In seven of these cases, in which an exceedingly strong dose of strychnia was injected, there was no sign of poisoning even after forty-five minutes. When, however, the fluid was allowed to escape into the peritoneal cavity, it caused most violent cramps in about three minutes, which rapidly proved fatal. In the other three cases symptoms of poisoning set in after about the same interval as if the poison had been injected into the foetus. In these cases the foetus lived, whereas in the other seven it rapidly died. Evidently it was the medium through which the poison reached the mother's system, for in the three cases in which it lived the symptoms developed slowly; and if here only a simple diffusion took place, why should spasms have been altogether absent in the other seven cases?

The foregoing extracts are from a paper (in the *Archiv. f. Gynækologie*, Bd. XIII., Heft 1) by Prof. Gusserow, of Strasburg, and lately appointed Professor in Berlin. These investigations are most interesting to the physiologist. In a former paper, in 1871, he published his first series of experiments on this subject. His conclusions have been accepted in some of the best German works, but I have failed to find any notice of them in our English textbooks.

ART. VII.—*Abdominal Aneurism Diagnosed nearly Four Years before its Fatal Termination, by Examination per Rectum; Cardiac Disease; Enormous Weight of Heart.* By ROBERT SAMUELS ARCHER, A.B., M.B.

SEVERAL features in the following case may possibly prove interesting to the readers of *The Dublin Journal*:—In the first place, I would draw special attention to the enormous weight the heart

attained; and, secondly, to the method adopted to ascertain the actual condition of the abdominal aorta nearly four years before the patient's death. I refer to the diagnosis of abdominal lesions by rectal examination—the introduction of the whole hand and greater part of the forearm up the rectum, whilst the patient is under the influence of chloroform. By this means the under-surface of the liver, the kidneys, and other viscera, can easily be felt, and the existence of any tumour or other abnormal condition readily detected. This is a mode of exploration which I am not aware of being in common use in this country, but which is, I believe, a good deal employed at the other side of the Atlantic, and, if I recollect aright, was first practised in America. In this way Dr. Sands, of New York, determined the lesion in the present case beyond a doubt.

I append here the copy of a short account of the case given to the patient by the House Surgeon of the Hospital in which he was under treatment in New York. I have the original document, and there can be no doubt of its genuineness:—

“ROOSEVELT HOSPITAL, FIFTY-NINTH-STREET

“AND NINTH-AVENUE,

“NEW YORK, August 9th, 1874.

“The following is a short account of John Murphy's case while he was under treatment in the hospital:—

“Admitted April 3rd, 1874. At time of admission he was suffering from an aneurism of first part of axillary artery. There was a tumour just below left clavicle in the course of axillary artery; pulsation and bruit distinct; pain in supra-scapular region and arm quite severe. He stated that five weeks before admission the radial pulse suddenly stopped. No pulsation now in radial, ulnar, or brachial. Patient had also severe pain in lumbar region. He was given morphine to quiet pain, and kept still. The tumour (aneurism) gradually became smaller and harder, and about May 17th no pulsation or bruit could be found. The pain in back increasing, his abdomen was examined, and a murmur found, most distinct just above and a little to left of umbilicus. An examination per rectum was made by Dr. Sands, and an expanded condition of aorta, just above the bifurcation, found. Pressure was made by means of an abdominal tourniquet. Potass. iod. grs. xv. t. i. d. given, and morphine to ease pain. Elastic pressure was also tried, and at one time the pain became less, and the murmur less distinct. He, however, bore the pressure badly, and the pain again increased; the murmur also appeared to get more distinct.

“Patient being very anxious to return home, these facts were stated,

so that the surgeon to whom he applies may know something of previous history of the case.

“G. F. BLANVELT, M.D.,

“House Surgeon to Roosevelt Hospital.”

The patient had been a mariner, and was admitted to West Derby Union Hospital on Nov. 21, 1877. He stated that he was forty-nine years old, though he looked several years older. He was very loquacious, and seemed most anxious to give a correct account of his symptoms. He was pale and anæmic-looking, and a good deal emaciated. His chief complaint on admission was pain in the back, situated rather low down, and radiating round the loins. This, he informed me, was relieved by iodide of potassium. This pain was rather variable—at times almost entirely absent, at others very severe—and it certainly did seem to be eased by large doses of iodide of potassium. Pulse in right wrist, 108, collapsing, and suggestive of aortic disease. The left radial artery was hard and rigid, and hardly any pulsation could be felt in it. There was a distinct, distensible, rather diffuse impulse in epigastrium, increased by placing the patient on his hands and knees. A blowing murmur was heard along the spine, at the lower dorsal and upper lumbar regions, for the distance of from six to eight inches. The heart's action was feeble, and the area of cardiac dulness increased. A distinct blowing systolic murmur was heard about two inches above the umbilicus, which became double at the xiphoid cartilage, and was more distinct about two fingers' breadth higher up in the median line of the sternum. There was a systolic murmur at the apex, and muffling of the second sound. Over the aortic area the first sound was sharper than usual, and there was a distinct diastolic murmur. Congestion of the lower lobes of the lungs; legs and feet were swollen and cedematous. He said his “food seemed to stick at the pit of his stomach,” and he had continually to drink whilst he was eating solids, to enable him to swallow them. Shortly after admission his urine was found to be of a rich amber colour, reaction acid, spec. grav. 1028, and to contain a very minute quantity of albumen. During the time he was under observation he had several attacks of cedema of the lungs, accompanied by distressing cough, profuse frothy expectoration and orthopnoea. As a rule, he passed restless nights. On Jan. 1, 1878, the murmur along the spine was found to have assumed a double character, and on the 8th he complained of a pain situated about midway between the superior posterior spine of the ilium and the spinal column. On Feb. 5th, urine was high-coloured; spec. grav. 1016; reaction acid; no albumen. On the following day his pulse was 120; respiration 46 per minute. Fine and coarse crepitating râles were heard all over the chest, obscuring the cardiac sounds. About this time he “rambled” a good deal, and was incoherent in his speech. From

this he rallied till about the middle of April, when he gradually became much weaker, and died on April 19th, apparently from exhaustion.

Post Mortem Examination.—April 20—Rigor mortis absent; body much emaciated; no tumour could be detected by external examination.

Chest.—The left lung was connected with the parietes by long fibrous bands. The right pleura, both visceral and parietal layers, was thickened and adhering; anterior portion a good deal injected. There were pleuro-pericardial adhesions. The right lung was firmly attached to the diaphragm, and was a good deal disintegrated. Both lungs exhibited traces of congestion. The pericardium was a good deal injected externally, and somewhat thickened. The heart weighed about 48 ozs., and was much enlarged. The left auricle and ventricle were dilated, and the walls of the latter greatly hypertrophied. The inter-ventricular septum bulged to a large extent into the right ventricle. The mitral orifice was much dilated, admitting readily my four fingers. The curtains of the mitral valve seemed healthy, but were quite inadequate to close the mitral opening. The aorta was dilated, rigid from atheromatous deposit; its lining membrane rugose and uneven, covered here and there by plates of calcareous matter. The aortic valves were fairly healthy, but were quite incompetent to close the vessel. The valves of the right side of heart were normal, and there was no marked dilatation or hypertrophy.

Abdomen.—The visceral and parietal layers of the peritoneum were firmly united by strong adhesions, which here and there required the use of the scalpel to separate. The intestines were glued together in various places by adhesions. The upper surface of the liver was very firmly adherent to the diaphragm, and the corresponding portion of this muscular expansion was a good deal atrophied. The portion of the aorta corresponding to the first and second lumbar vertebræ was dilated into an aneurismal sac about the size of an orange, which was firmly adherent to the spinal column, and had deeply eroded the bodies of the two vertebræ mentioned above on their left lateral surfaces. The sac was almost filled with fibrinous clots.

The left axillary artery presented an enlargement just below the clavicle, consisting of a firm fibroid mass, without any passage through it; but just below the obliterated portion it was pervious, and two or three anastomosing branches opened into it.

In this case there would seem to have been, so to speak, a tendency to general aneurismal dilatation of the arterial system. For, in the first place, we have a distinct history of an aneurism of the first part of the left axillary artery, the consolidated sac of which was discovered after death; secondly, a well-marked aneurism of the abdominal aorta; and lastly, dilatation of the first stage of the

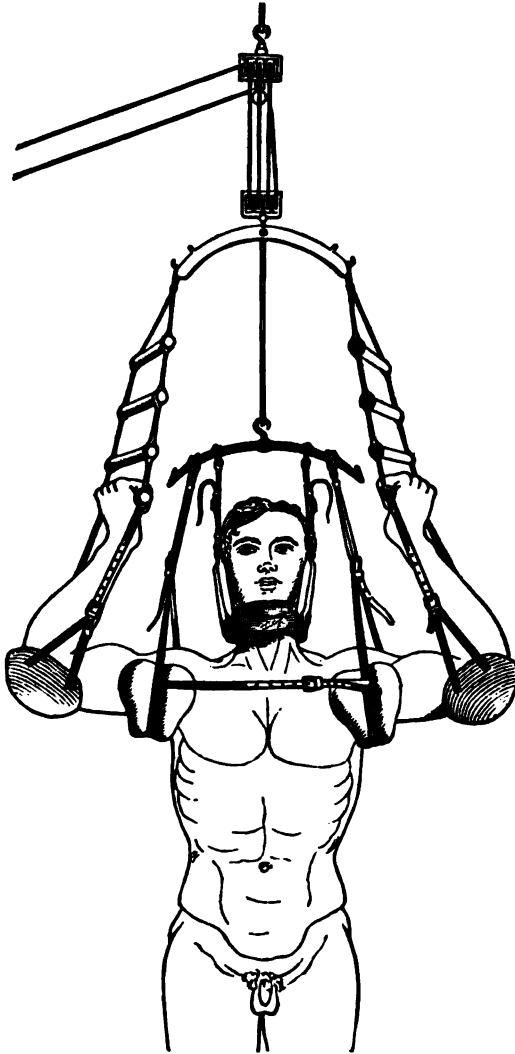
arch of the aorta, which had proceeded to a considerable extent, causing secondary lesions in the left side of the heart. I think it by no means improbable, had we searched carefully, that other vessels might also have been discovered to have been involved to a greater or less degree. It is a well-recognised fact that such dilations do occur, and in the absence of any history of muscular strain, or other manifest cause, I am inclined to think this man must have been predisposed to such lesions of the arterial system. The heart was certainly the heaviest (48 ozs.) it has ever fallen to my lot to examine, nor can I call to mind any recorded case in which such an enormous weight was attained. It was more than three times as heavy as an ordinary male adult heart, and its great weight seems the more remarkable when we have regard to the general emaciation and the entire absence of any deposit of fat.

The pathological sequence of events in this case would appear to have been (1) an aneurismal dilation of the left axillary artery, followed by obliteration of the sac; (2) coincident with, or closely following, this—dilatation of the abdominal aorta, which proceeded to the formation of a true aneurism; (3) a dilated condition of the first part of the arch of the aorta, accompanying which was gradual and progressive incompetency of the aortic valves, also a certain amount of dilatation and hypertrophy of the left ventricle; then (4) enlargement of the mitral orifice, associated with necessary inadequacy of the curtains of the mitral valve to close the gap, and, as a natural consequence, still further dilatation and hypertrophy of the left heart, which was especially marked in the ventricle, whose muscular structure had proceeded to an enormous condition of compensative hypertrophy, and to which the excessive weight of the heart was mainly due.

In discussing the case with a medical friend, it was suggested that the peritonitis, evidences of which were detected at the autopsy, might have resulted from the introduction of the hand up the rectum, whereby some of the delicate fibres of the peritoneal covering of the gut may have been ruptured, and thus inflammation set up—probably, too, pressure by the tourniquet may have contributed somewhat to it. Whatever may have caused it, I certainly never saw as firm or more universal peritoneal adhesions. It would be well, I think, to keep in mind the possibility of peritonitis following on examination per rectum.

ART. VIII.—*Sayre's Suspension Apparatus Modified.* By DR.
WALTER BERNARD, F.K.Q.C.P.I., &c., Londonderry.

HAVING found that the apparatus caused pain, arrested circulation, and afforded no relief by change of posture, I modified it as shown



in the drawing. It will be seen by it that rest can be secured either by seizing the ladders or resting the elbows in the cups, and that the patient can be suspended for a longer time without feeling much exhaustion or pain. It may be seen in position at Fannin's, 41, Grafton-street, Dublin.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Transactions of the New York Pathological Society. Vols. I. & II.
Edited by JOHN C. PETERS, M.D. New York. 1877. W.
Wood & Co. Pp. 271-292.

ALTHOUGH founded in 1844—a few years after our own metropolitan Society—these are the first volumes published by the New York Pathological Society, and we doubt not but that their appearance will be welcomed with pleasure by all pathologists. For the past thirteen years their transactions have appeared in the pages of our admirable weekly contemporary, the *New York Medical Record*. Previous to that date the proceedings were recorded in manuscript, and are preserved in the archives of the Society. All these materials have now been collated and arranged; and it has been decided to have a gradual publication of the Transactions from 1844 to the present time. The manner in which this has been done, so far, is very commendable. Cases and points which appear most worthy of notice have been selected and condensed, evidently with great care, from the earliest records, and in most cases made to serve as supplemental to, and commentaries on, the proceedings for the year 1875. The plan followed in the arrangement of the subjects themselves is the one our readers are familiar with in the Proceedings of the corresponding Societies of Dublin and London; and the value of the cases is in many instances greatly increased by the addition of editorial and other notes, containing, *inter alia*, *ad rem* points from the writings of various eminent authorities.

Among other noteworthy features in these volumes we would particularly mention the several valuable tabular statements of cases of certain forms of disease collated from the Society's records. For example, Dr. Delafield has compiled a table comprising 84 cases of aneurisms of the aorta, in which the age of the patient, situation of the aneurism, mode of death, secondary complications, and other particulars are set forth. In another table, Dr. Thompson gives a statement comprising the *ante* and *post mortem* history of 55 cases of cancer of the stomach. Again, in Vol. II., we find a

tabular statement, also by Dr. Delafield, of 16 cases of perforation of the vermiform appendix; and another, by Dr. Sands, of 21 cases of operation for intussusceptions. A large number of rare cases are included in both volumes, which up to the present cover the diseases of the nervous, respiratory, circulatory, and digestive systems. Sixteen cases of rupture of the heart are given in Vol. I., and four cases of rupture of and into the pulmonary artery. But in the selections which have been made, it is evident that the wants of the junior members of the Society have not been forgotten; and that while rare cases have not been overlooked, the volumes are not mere collections of pathological curiosities, but will be found most valuable works of reference and full of information on points of importance to every intelligent practitioner.

Each volume has an ample index and table of contents, and in typography and general get-up leaves nothing to be desired.

WORKS on MATERIA MEDICA and THERAPEUTICS.

1. *The Action of Medicines.* By ISAAC OTT, A.M., M.D. With 22 Illustrations. Philadelphia: Lindsay and Blakiston. 1878. Pp. 168.

DR. OTT appears to be an adept in vivisection, and an enthusiast in seeking for a scientific basis in explanation of therapeutic action. We cannot, however, think that this volume will either advance the author's reputation or promote the laudable objects which he has in view. It is indifferently written, the descriptions are confused, and the results of the experiments seem rather those of an amateur experimentalist than such as are likely to lend much aid to scientific medicine or to inspire practitioners with confidence. For example, the action of nitrous oxide upon man is epitomised as follows:—"When inhaled it gives a sweet taste, roaring in the ears, a feeling of warmth over the whole body, a sense of fulness, pressure in the head, and insensibility" (p. 146).

2. *A Guide to Therapeutics.* By ROBERT FARQUHARSON, M.D. London: Smith, Elder, and Co. 1877. Pp. 302.

WITHIN the compass of 300 neatly printed pages Dr. Farquharson has managed to condense in a very readable form a considerable body of information, and has, we think, succeeded in framing a useful compilation for students. We observe that the book has

been re-issued in America, enlarged and adapted to the U.S. Pharmacopœia by Dr. Woodbury. The most distinctive feature of the work is the peculiar arrangement of the text. In one column the leading physiological actions of the drug are set forth, and in the other column the therapeutical indications and modes of action are arranged. Thus one is contrasted with the other—a plan adopted apparently in deference to current views as to the best method of inculcating therapeutics. Another modification introduced is that instead of treating the principles of therapeutics in a connected fashion, the general therapeutics of a group of remedies—*e. g.*, purgatives or narcotics—are discussed immediately after the article on the leading member of the group. At the end of the volume the author submits a series of therapeutical queries and problems which are well calculated to encourage the reader to reflect with profit on what he has perused. The sequence of the articles appears to be nearly as arbitrary as in the well-known manual of Ringer, whose teaching Dr. Farquharson evidently follows. A few inaccuracies and inelegancies have escaped revision. For example, what is meant by the extraordinary statement (p. 50) that benzoic and citric acids “are not true acids in the chemical sense?” Again, “Calomel dissolved in lime water!” (p. 85). Apomorphia is given as one of the alkaloids contained in (!) opium (p. 159); and (p. 183), “This drug (*Laurocerasi Folia*) contains (!) prussic acid.”

3. *A Practical Description of every Form of Medico-Electric Apparatus in Modern Use.* Second Edition. By SALT and SON. London: J. and A. Churchill. 1877.

THIS descriptive catalogue fairly fulfils its objects, and seems to have met with approval, the first edition having been rapidly exhausted. In the present issue a few additions have been made, and Messrs. Salt figure and describe a modification of Stöhrer's constant current battery, in which means are adopted whereby the accidental spilling of the acid is prevented.

4. *The Materia Medica of the Hindus, compiled from Sanskrit Medical Works.* By UDOR C. DUTT. With a Glossary of Indian Plants. By G. KING, M.B. Calcutta. 1877.

EUROPEAN medical men resident in India must frequently see patients who have been previously treated by native practitioners with indigenous drugs or preparations known only by their vernacular

cular names, and the present work, which appears to be the first in the field, cannot but prove indispensable for reference in such cases. A good index is furnished, together with a comprehensive glossary of the titles of Indian plants in Sanskrit, with their Bengali, Hindu, and Latin synonyms. The book bears abundant evidence of the industry and painstaking labour bestowed upon it by the author, who modestly describes it as a compilation from standard Sanskrit medical works. It may be regarded as supplementary to Dr. Wise's "Commentary on the Hindu System of Medicine," in which was given some account of the anatomy, surgery, and pathology of the Hindus. We congratulate the author on the result of his labours, and on the large amount of valuable information which he has been able to collect and arrange in a very creditable volume.

Lectures on Diseases of the Nervous System. Delivered at Guy's Hospital by SAMUEL WILKS, M.D., F.R.S. London: J. & A. Churchill, New Burlington-street. 1878. Pp. 472.

THIS is one of the most useful of the works on the nervous system which have recently appeared. Although the author is inclined to apologise for the order in which the subjects it treats of are arranged, we think many readers will agree that a lecture in most cases dealing exhaustively with its subject is a more satisfactory method of communicating information than more formal systems based on rigid classification. The work is arranged in four Parts: Brain—the Spinal Cord—Functional and General Diseases—Nerves. One of the most interesting chapters is the final one, entitled General Remarks on Remedies and Electricity. The accounts of alcoholic paraplegia and of the effects of alcohol in producing a myelitis or meningitis are valuable and original. The sections on Acute Ascending Paralysis, Ménière's Disease, Concussion and Railway Spine, and Hysteria, will be studied carefully by all who appreciate the well-digested reflections of one who is now a veteran in nervous pathology.

Des Ictères Chroniques. Par le Dr. ISIDORE STRAUS. Paris: J. B. Baillière & Fils. 1878. Pp. 173.

THE learned author of this treatise on chronic forms of jaundice is already well known by his contributions to medical science. The

work is comprised in six chapters, the first of which is devoted to the pathological physiology of icterus in general; the second relates to the pathogeny of chronic jaundices; the third treats of their symptomatology; the fourth discusses the diagnosis and semeiological value of icterus; the fifth relates to prognosis, and the sixth to treatment. Throughout the work, and more especially on the very English subject of Xanthelasma, the author shows a minute acquaintance with the writings of British physicians.

Phosphates in Nutrition and the Mineral Theory of Consumption and Allied Diseases. By M. F. ANDERSON, L.R.C.P. Ed. and M.R.C.S. Pp. 178. London: Baillière, Tindall, & Cox. 1878.

THE reader of this work will have no reason to complain of any lack of industry on the part of the author. There are scores of lists of analyses and lengthy statistics to prove what no one denies—the utility of the inorganic elements of food. The leading idea is that phosphates are to be found in all the tissues, but especially in the capillaries, and that the intima is their chief resting-place. The amount of inorganic material, mainly tribasic phosphates, in the tissues is set down at $7\frac{1}{2}$ per cent. This supposition supplies the key to the whole book. "In the treatment of consumption the capillaries, which are the seat of disease, are the main agents on which dependence must be placed to restore lost nutrition. Digestion and assimilation can only take place by means of the capillaries, and if these are so far disorganised as to have lost all power of restitution, the supply of their proper food is useless." Again—"In organic disease mineral starvation of the arterioles or capillaries is the starting point of the disease." Guided by this pathology the author has made up in his laboratory a "tissue phosphate containing all the mineral ingredients which analysis has shown the coats of the aorta and the different organs examined to contain." Particulars of two or three cases of phthisis treated with this preparation are given, but the details of the remedy itself are omitted. Everyone will admit that phosphorus and phosphates are often most valuable adjuncts in averting tuberculous manifestations, but we do not think this book can be accepted as in the least explaining the *modus operandi*.

Orthopraxy—the Mechanical Treatment of Deformities, Debilities, and Deficiencies of the Human Frame. By H. HEATHER BIGG, Assoc. Inst. C.E. Third Edition. Pp. 628. London: J. & A. Churchill.

THERE is none of the branches of surgery in which greater care and patience are required than in that of orthopædics. Manipulative power, a knowledge of the higher laws of mechanics, and the capability of applying these to suitable apparatus, are all needed for the successful treatment of most cases of deformity. Mr. Bigg is a well-recognised worker in this most difficult field, and for many years he has contributed largely to the improvement of the appliances used in correcting deformity. This volume has reached a third edition, and is now issued with many elaborations. We can only repeat the high judgment which we have passed upon its predecessors.

A remarkable case of plurality of artificial limbs is recorded. It is that of a young woman who lost hands and legs from gangrene, after her first confinement. She is able to crochet, to pick up articles even so small as a pin, and to write with legibility, as the specimens given show. Mr. Bigg is justified in calling this a triumph of his art.

The Pathology and Operative Treatment of Hip Disease. By THOMAS ANNANDALE, F.R.C.S.E. Pp. 50. Edinburgh: Maclachlan and Stewart, 64, Southbridge.

MR. ANNANDALE has in his little book brought before the profession the important questions which surround the treatment of hip-joint disease. One of the most deplorable of joint affections, it is also one of the most troublesome to treat, while the results are often most unsatisfactory, and an unequal reward for the wearying watchfulness of the surgeon. But as excision of the knee and ovariectomy have come into the first rank of operative procedure, so we are at the beginning of a more active and enlightened course of treatment in hip cases than has yet been reached. Antisepticism has opened up new possibilities in surgery, and when nature lags in her cure it enables the operator to give most valuable help.

The author discusses the pathology of these cases briefly, expressing his belief that the disease most frequently begins in the head of the femur. But passing to the practical side of his essay,

we find that he has operated in 22 cases, of which 14 recovered with a useful limb and movable joint, while the remainder died at periods varying from fifteen to two months mainly from visceral diseases. No case died from the immediate effect of the operation. This marked success he attributes to the use of antiseptics, and to the performance of the operation at an early stage. It is to be particularly observed that of the 13 cases treated on the Listerian method all recovered completely. The remainder were not so treated. In the unsuccessful cases the disease was advanced. In 17 no external sinus existed, but suppuration was present. Out of these 17 four were unsuccessful, "but it is most interesting to note that these four were among those treated non-antiseptically. In the remaining five external sinuses existed, and all of these were unsuccessful except one." Mr. Annandale advocates an antiseptic incision in all cases of hip disease in which signs of suppuration are present. If caries of the head exist, he advises the immediate excision of the bone. The book is essentially practical and contains many valuable lessons.

De L'Avortement au point de vue Médico-Legal. Par T. GALLARD, Médecin de l'Hôpital de la Pitié, &c. Pp. 135. Paris: Baillière et Fils. 1878.

THIS monograph is presented under the form of clinical lectures, the immediate subjects being cases of women who were in the hospital under the author's care. M. Gallard, after detailing the usual signs, the amount of value which can be attached to each of them, and the difficulties that stand in the way of a diagnosis, proceeds to examine the conditions in which criminal abortion is attempted, and the means employed for executing it. The latter are ranged under three heads:—1st, Abortive Substances; 2nd, Indirect Means, including External Violence; 3rd, Manœuvres applied directly to the uterus. The real efficacy of abortives he considers very doubtful, but their employment often renders service in revealing a criminal intention. Indirect means, such as baths, bleeding, blows, &c., seldom succeed. Abortion is therefore most usually the result of direct manœuvres difficult enough sometimes to recognise in their nature and effects, and rendered doubly so by the circumstance that the guilty not unfrequently employ means borrowed from the obstetrician's art.

M. Gallard examines the rôle of the expert in the four situations

in which his services may be called upon. First, at the autopsy of the mother, among other signs observed by the author himself or taken from the experience of others, he insists upon a new one for which he claims a high value—it is the presence of ecchymoses in the *culs-de-sac* of the vagina and on the projecting lips of the os tincæ. This sign, however, we cannot admit to be pathognomonic, as ecchymosis may be observed in circumstances where there is no suspicion of abortion. Secondly, in the autopsy of the fœtus and the comparison of the lesions, which it shows with those which exist on the body of the mother. When the comparison can be made it is of great importance, and an interesting case is related to illustrate its value. Thirdly, at the examination of the living woman, and the agreement between her replies to questions asked and the state of the organs examined. Lastly, and this is the most original part of the work, at the inspection of the expelled product, M. Gallard insists specially on a sign which has never misled him in cases where the abortions occurred before the end of the third month of pregnancy. It is the tearing of the membranes. These, save in a very few cases where it is always easy to account for the rupture from severe violence, are not broken when the abortion occurs naturally. A series of well-arranged cases renders the work clinically interesting as well as judicially valuable.

Illustrations in Clinical Surgery. By JONATHAN HUTCHINSON, F.R.C.S. 11th Fasciculus. London: J. & A. Churchill.

WE are glad to know that the success of Mr. Hutchinson's first volume of illustrations has been so great that he feels justified in continuing the issue of them. The profession has rightly estimated this most valuable publication. The 11th Fasciculus is devoted to a description of detachment of the lower epiphysis of the femur, syphilitic teeth, and a case of bony union of an intracapsular fracture of the neck of the femur. The author believes that bony union is not nearly so infrequent in this fracture as is thought, and that a good many preparations quite worthy of confidence exist in different museums—no less than three in Trinity College, Dublin.

PART III.

HALF-YEARLY REPORTS.

REPORT ON MIDWIFERY AND DISEASES OF WOMEN.

By ARTHUR VERNON MACAN, B.A., M.B., M.Ch., M.A.O.,
Univ. Dubl.; F.K.Q.C.P.; Gynæcologist to the City of Dublin
Hospital; Ex-Assistant Physician to the Rotunda Lying-in
Hospital, Dublin.

BATTEY'S OPERATION—SO-CALLED NORMAL OVARIOTOMY.

PROFESSOR HEGAR, of Freiburg, has just published a most striking monograph on this subject,^a and, we think, has succeeded in establishing it on a firm physiological basis, of which, up to this time, it was greatly in need. As the operation is known to the profession in this country almost exclusively through a series of papers by Dr. Marion Sims in *The Brit. Med. Journal* for December, 1877, we purpose, before giving a *résumé* of Professor Hegar's paper, briefly to notice a paper by Dr. Battey himself, which appeared in Vol. I. of the Transactions of the American Gynæcological Society. He was led to the operation from his observations on a young woman in whom the uterus and vagina were absent, who suffered most intensely from menstrual molimina. His object in performing the operation is either to remove an ovary that is performing its functions viciously or abnormally, or, by removing both ovaries, to bring on the change of life. Of his first ten operations, three were performed with the former object and seven with the latter. The operation he describes as follows:—

"I place the subject upon the left side, semi-prone; open the vagina, and retract the perinæum with a Sims' duck-bill speculum, having a broad, rather short blade, which is but slightly cupped. . . . The cervix is seized with stout volsella, the uterus drawn down under the pubic arch, and the vaginal membrane and cellular tissue incised with scissors, say one and a-half inch in the median line of the posterior *cul-de-sac*, immediately behind the uterus. If there is bleeding—which there usually

^a "Die Castration der Frauen." *Volkmann's Sam. klinischer Vorträge*. Nos. 136-138.

is not—it is controlled by a jet of ice-water or by torsion, after which the peritoneum is incised. I now direct an assistant, with a hand upon the hypogastrium, to press the abdominal organs downwards into the pelvis, while I pass a finger up into Douglas' fossa, and, assisted by suitable forceps, bring down the ovary into the vagina, and throw a ligature about its base. The other ovary having been similarly treated, the organs are removed in turn by the *ecraseur*, allowing time in the crushing to give immunity from hæmorrhage. The vagina is now syringed out and the patient put to bed. No ligatures or sutures should be left in the tissues; these I regard as both superfluous and detrimental. The patient is placed on the back, and the drainage is as perfect as could be desired." (P. 115.)

The after-treatment is very simple:—

"In two or three instances I have found it necessary to wash out the cavity with a double-current catheter, in others only syringing the vagina has been necessary."

The questions which he finally considers are:—

1. Should both ovaries be invariably removed?
2. Does such removal determine the change of life?
3. Does the removal of the ovaries lessen the attractiveness of the woman?

His answer to the first question is in the affirmative, as the results obtained from the removal of one ovary were most unsatisfactory. As to the second, he thinks the number of his cases is entirely too small to throw any important light on the subject; and, with regard to the third, he says:—

"There is no loss of womanly graces, but, on the contrary, the patient gains flesh and becomes even more attractive."

The mortality in his first ten cases was 20 per cent., which, however, he thinks excessive, and believes will in future be reduced by one-half. Dr. Battey thinks the removal of the functionally active ovaries is indicated—

"In case of any grave disease which is either dangerous to life or destructive of health and happiness, which is incurable by other and less radical means, and which we may reasonably expect to remove by the arrest of ovulation or change of life."

In the same volume of the transactions, Dr. Peaslee relates a case where he removed both ovaries from a married woman who had a partially-developed vagina and a rudimentary uterus. She was

subject to hysterico-epileptiform fits, which were supposed to depend on irritation of the ovaries, and which, having gone on for many years, at last threatened to destroy her reason. The patient died. Dr. Peaslee thinks the operation only justifiable to prevent mental imbecility, and would not perform it to remove physical suffering.

Dr. Sims, in his review of the operation, gives an account of seven cases in which he himself has performed it. In five of these he only removed one ovary, so that his results do not help us much to determine the question whether their removal brings about the change of life as we understand it—viz., a cessation of ovulation and also of menstruation. Dr. Sims, however, thinks that Dr. Atlee's two cases of double ovariectomy prove that menstruation may occur regularly for years after the removal of both ovaries, and that it is absurd to say that the change of life consists in the disappearance of menstruation. He says:—

“The real change of life consists in the cessation of ovulation, whether this be accomplished by nature at the climacteric period, or artificially by the operation of ovariectomy, or Battey's operation.”

He gives two new cases operated on by Battey, and finally acknowledges that the statistics of the operation, so far, are not very encouraging. Of Battey's cases, only one in four was cured, while one in six died. The results of his own operations were still less encouraging—for, out of seven patients operated on, one died; in one the operation was abandoned; three were made worse; one was greatly improved; and only one was perfectly and permanently cured. These unfortunate results he thinks are, however, chiefly due to the fact that he so often removed only one ovary; and he is of opinion that the operation will have a brilliant future. He strongly recommends the abdominal section in preference to the vaginal.

The operation being in this critical position, the monograph of Hegar, which is entitled “The Castration of Women,” appears most opportunely. In it he first discusses the significance of the ovaries for the whole economy—both as to the influence their congenital absence or rudimentary development has on the general development of the body, and, more especially, on the development of the genital apparatus; and he then considers what effect is produced on the whole economy by their degeneration or removal after puberty. With a view to solving this latter question, he care-

fully analyses all the cases where both ovaries have been removed, either on account of double hernia, or double cystic degeneration, or for any other cause.

The first authentic case of the removal of both ovaries is that related by Pott, who removed both ovaries which were contained in the sacs of double inguinal hernia. The result of this operation was the cessation of menstruation, a diminution in the size of the breasts, and a slight approach to the masculine type. This is the only case where both ovaries were removed for hernia, except one reported by Werth—in which case, however, the patient had a rudimentary vagina, and no uterus.

Cases of double ovariectomy are especially interesting as elucidating this question, and also the relation of ovulation to menstruation.

Goodman has collected twenty-seven such cases. In thirteen the menses ceased at once; in ten they continued quite regularly; in two cases there were irregular hæmorrhages; and in one there were molimina present with fluor albus. A case of Koeberlé's has been much quoted, but under quite a mistaken idea. He removed the uterus—but not the ovaries—and the patient became pregnant through an imperfection in the union of the cut surfaces of the uterus, and died at the fifth month of extra-uterine pregnancy.

Three cases of M'Clellan's are given, which are, however, so badly reported as to be almost useless.

Thomas gives eight cases, in seven of which all menstrual discharge ceased. In one case menstruation occurred twice after the operation. Then followed two months of amenorrhœa, after which the discharge returned again quite regularly.

Hegar gives a table of twenty cases of double ovariectomy—in sixteen of which the menses ceased entirely, while in three they remained quite normal. Of the latter cases, one was operated on by Hegar himself, and he is now very doubtful whether he removed the second ovary entirely or not.

His eighteenth case is interesting, as he purposely abstained from removing a mucous polypus before the operation—and the patient twelve weeks afterwards had a bloody discharge, which recurred for some time at intervals of five to six weeks, and then ceased.

The cases of removal of both ovaries which Hegar has collected tend to show that menstruation is dependent on ovulation. He is not, however, in a position to deny that menstruation may possibly take place after the extirpation of both ovaries; but he points out

some sources of error which have very probably given origin to this idea:—

1. In cases of ovariectomy some sound ovarian tissue may be left behind *in the pedicle*. The most obvious proof of this is the fact that cystic disease has been known to recur in the pedicle, or in some adhesion—even in cases of normal ovariectomy it is sometimes impossible, from the amount of the adhesions, to be sure that no portion of ovarian tissue has been left behind.

2. The tumour that is removed may not be an ovarian one at all. It is only quite lately that the distinction has been clearly defined between cysts of the ovary, parovarium, and broad ligament.

3. A third, or supernumerary ovary, may be present.

4. Women look on menstruation as a sign of sexual activity, and acknowledge very unwillingly that it is entirely absent.

5. Other hæmorrhagic discharges—especially if they observe any periodicity in their appearance—are very hard to distinguish from true menstruation. Even long after the climacteric, pathological processes—such as endometritis with the formation of polypus, or commencing malignant disease, or even disease of the heart or liver—may cause periodical hæmorrhages.

Hegar thinks, too, that in older women there is a permanent dilatation of the blood-vessels of the pelvic organs, due to the frequent periodical congestions accompanying menstruation. Indeed, he says that such dilatation may be demonstrated *post mortem*. Moreover, when a large tumour is removed the blood has less room—is confined, as it were, in smaller limits. This, he thinks, may explain the hæmorrhages which are so frequently observed after ovariectomy, or even hysterectomy.

In these several ways he seeks to explain the supposed occurrence of menstruation after extirpation of both ovaries.

Molimina often remain for some time after extirpation of both the ovaries; but it is singular that similar symptoms have been observed when the whole uterus has also been removed.

Hegar thinks it quite natural that the sudden stoppage of an accustomed hæmorrhage should cause unpleasant symptoms.

Batley records a case in which the operation led to superinvolution of the uterus. In three cases where Hegar removed both ovaries for fibrous tumour, there was a marked and rapid decrease in the size of the tumours at once noticeable.

As to the bodily and mental change that follow the operation, some operators have noticed that the voice became stronger and

harsher. Peaslee says that in none of his nine cases was there any loss of feminine charms. Koeberlé expresses this idea even more strongly, and thinks that the character after the operation becomes if anything more gentle. In none of his cases had the voice become harsh or the breasts small. Hegar agrees with these ideas, but thinks there is probably a slight tendency to *embonpoint*, beside that due to improved health. A diminution in sexual feeling has been frequently observed, but it is by no means universal. In all Koeberlé's cases there was amenorrhœa, and perfect health otherwise.

His general conclusions are as follow:—The ovaries may be congenitally absent or imperfectly developed, and the person still be of a thoroughly feminine type. The most striking example of the independence of the type on the ovaries is in the case of hermaphroditismus transversalis—where the individual, though having testicles, may be of a thoroughly feminine type. The development of the tubes, uterus, and vagina (the latter, however, in a less degree), are usually, however, proportionate to the development of the ovaries—whereas the uterus may be quite absent and the ovaries nevertheless perfectly developed. Congenital absence or imperfect development of the ovaries is always accompanied by amenorrhœa.

The castration of young animals (pigs) prevents the further development of the uterus. There is no "heat," the temperament is quieter, and there is a tendency to the formation of adipose tissue.

The castration of adult animals (cows) produces no well-marked constant result. An increased tendency to fatten is very doubtful, nor is a favourable influence on the secretion of milk always observed. The phenomenon of "heat" nearly always disappears.

We know nothing absolute about the effect of castrating young female children.

Amenorrhœa generally accompanies complete atrophy of the ovaries—exceptions are due to the irritation produced by inalignant disease, and to collateral fluxions and congestion.

Extirpation of both ovaries is nearly always followed by amenorrhœa. The exceptions are due to imperfect removal; to mistakes as to the nature of the tumour; to the presence of a supernumerary ovary, or untruthful statements of the patient. Hæmorrhage from other causes—such as uterine disease, dilatation and relaxation of the walls of the pelvic vessels, or collateral fluxion—may be mistaken for true menstruation. The molimina which often remain,

and the other unpleasant symptoms, are due to the same causes that produce them at the period of the change of life.

Superinvolution of the uterus and a diminution in the size of fibrous tumours have been observed to follow the operation. In some rare cases a change has been observed in the voice, and an increase in the growth of the hair on the face. Sexual feeling is now and then lost, and not unfrequently there is an increased tendency to corpulence. Hysterical attacks have in some cases quite disappeared, but as a rule there has been no change observed either in the bodily or mental peculiarities of the patient.

It is not therefore true that "*propter solum ovarium mulier est, quod est.*" The type is determined by the same influence that settles whether an ovary or a testicle shall be developed.

In the chapter on the history of the operation Hegar claims to have been the first to perform it—his first operation being performed on July 27th, 1872, while Battey did not operate till August 17th in the same year. Trenholme, of Montreal, was the first who performed it in cases of fibrous tumour, in January, 1876. Hegar lays down as conditions necessary before the operation is performed:—

1. That both ovaries must have been previously palpated—for they may be already absent, or may be out of reach, as in cases of fibroma.
2. They must both be capable of being entirely removed.
3. No acute inflammation must be present.

Indications for the Operation.—The first is a general one, and applies equally to all cases. The operation is indicated in cases of anomalies or diseases which either directly threaten life or render it probable at no very distant period, or which cause a long-continued illness (*Siechthum*), which is progressive, painful, and prevents the patient from having any enjoyment in life or following any settled occupation, which is irremediable by any other method, but which will cease with the removal of the ovaries. The *special indications* are:—

1. Double ovarian herniæ, which give rise to symptoms, &c.
2. Swelling of the ovaries, with symptoms of irritation; increased pain on pressure, whether the ovaries are in the normal position or are prolapsed into Douglas' space; chronic oöphoritis or peri-oöphoritis.

Hegar will not allow of any indication which has not for its foundation some definite anatomical change in the ovaries. In this he differs from some American authorities.

3. Conditions of the uterus which make the discharge of the menses impossible or very difficult, while the ovaries are in full functional activity.

4. Atresia of the uterus or vagina, with retention of the menses—it being at the same time impossible either to open the natural outlet or to make an artificial one.

5. Chronic inflammation of the tubes, the pelvic peritoneum, and parametrium—provided that such inflammation, though not primarily due to any pathological change in the ovary, is, nevertheless, set up afresh and continually renewed by the process of ovulation.

6. Diseases of the uterus, such as fibroma or chronic inflammation—especially when accompanied by severe and uncontrollable hæmorrhages; retroflexion and antelexion—in a word, all affections which lead to the consequences enumerated in the first general indication, as soon as all the ordinary means of treatment have failed to cure.

Besides these indications Battey gives another, viz.:—In cases of long-continued bodily or mental suffering which depend on disturbances in the nervous or vaso-motor systems. This indication Hegar thinks is without even a theoretical basis.

The Operation should be performed in the strictest antiseptic method. He prefers diluted chlorine-water to carbolic acid as an antiseptic, as it has a tendency to check capillary hæmorrhage, and recommends the week following the cessation of menstruation as the most favourable time for the operation. The abdomen may be opened in the linea alba, as in ordinary ovariectomy, and at first the incision need not be larger than is necessary to enable the operator to introduce two fingers into the abdomen. He condemns the vaginal operation from his experience of it on the dead body. The flank operation has only been performed three times on the human subject, and each time by Hegar, though it is the usual method in the case of animals. The great objection to it is that it necessitates two separate incisions. In searching for the ovary the greatest assistance is derived from a finger passed into the vagina to press up the ovary. In two cases of fibroma, where the ovaries could not be withdrawn from the abdomen, Hegar drew the tumour with the uterus out through the wound, removed the ovaries, and then returned the tumour. He does not, however, recommend this plan, for he thinks that, if the tumour has to be thus brought outside the abdomen, it is better to remove it altogether. He pierces the pedicle, and ties both sides separately with disinfected silk ligature.

If salpingitis or pyosalpinx be present, the Fallopian tube must be removed along with the ovary. After the operation septic peritonitis may occur from infection, and is almost certainly fatal. Hegar is not much in favour of drainage. More frequently, in the first few days, we have circumscribed peritonitis and phlegmons, not due to infection but to trauma. For this he recommends morphia internally, and ice-bladders or cold compresses to the abdomen.

Results of the Operation.—Out of 35 operations there were 9 deaths; 8 serious after-complications; 3 slight after-complications; and 15 uninterrupted convalescences. Out of 35 patients operated on—in 10 the disease was entirely removed; in 3 the patients remained too short a time under observation to enable the result to be determined; in 4 there was partial or temporary improvement; 8 were unimproved; 9 died; and in one the operation had to be abandoned.

These results do not seem very favourable; but, on examining the causes of death, he finds that in every case it was due to septicæmia. In only one fatal case was the operation carried on without some hitch occurring. The serious after-complications were cellulitis or localised peritonitis. Of the 8 cases which were not benefited, in 4 only one ovary was removed, in 3 the removal was not perfect, and in one only, where both ovaries were entirely removed, was there no improvement. In this case the operation was undertaken for the cure of the *petit mal*.

What effect, therefore, has the operation on menstruation? Out of 12 cases that were suitable for investigating this question—in 6 there was no subsequent hæmorrhage (3 were cases of fibroid); in 2 there was a single discharge about 5 months after the operation; in one irregular hæmorrhage occurred at intervals of 5–7 months; in 3 only were there regular discharges. In one of these cases the operator himself (Battey) doubted if the whole of both organs were removed; in another it is obvious that both were not removed, being embedded in exudation; and in the third case (one of Trenholme's) the discharge only recurred three times. In future, he thinks it will be possible to avoid most of the unfortunate results, principally by carrying out most strictly the antiseptic method; and then the mortality ought to be less than that after ordinary ovariectomy. His own more favourable results he thinks entirely depend on his having from the very commencement removed both ovaries, whereas M. Sims was generally contented

to remove one. Here also we see the necessity for the rule that both ovaries must be felt before the operation is undertaken. In a postscript he gives two cases which have since been published by August Martin (*Berliner med. Wochenschr.*, 1878, No. 16, p. 226), in which the operation was performed for fibrous tumour, and both of which proved most successful. Neither menstruation nor hæmorrhage occurred after the operation, and the tumours rapidly diminished in size.

Dr. Herman Beigel gives his views on this operation in the *Wiener medizinische Wochenschr.* 1878. Nos. 7 and 8.

He thinks there is no sufficient necessary connexion between ovulation and menstruation to warrant such a grave operation with the mere view of bringing on the menopause prematurely. He does, however, recommend it where the ovaries are excessively painful, and life is thereby rendered miserable. He insists that in the large majority of such cases there is structural disease present, generally disappearance of the follicles and cystic degeneration of the ovarian stroma.

In the *American Journ. of Obst.*, July, 1878, Dr. G. J. Engelmann gives the histories of three fatal cases that have occurred in his own practice. He has collected and tabulated the results of forty-one cases, which include three cases by Dr. Goodell, one each by Drs. Sabine, Gilmore, and Pallen, and his own three—in all nine cases—which are not contained in Hegar's table. He also gives a very complete list of the literature on the subject.

Mr. Lawson Tait is, we believe, the only Englishman who up to the present has performed this operation. Both his patients were operated on for hæmorrhage from fibrous tumour, and both died ("Diseases of Women," p. 297).

HOT-WATER INJECTIONS IN CASES OF UTERINE HÆMORRHAGE.

This treatment has been very extensively tried by the present Master of the Rotunda Lying-in Hospital, who, during the past winter, read a paper on the subject before the Dublin Obstetrical Society, which will be found at p. 60 of Vol. LXV. of this Journal (January, 1878).

It has also been very extensively used by Dr. Runge, who gives the results of twenty-two cases thus treated in the *Berlin. klin. Wochenschr.* 1877. No. 13.

The temperature of the water varied from 117° to 124° Fahr., and, as is not surprising, the injections failed to check the hæmor-

rhage in cases where a portion of the placenta was retained, till after its removal. There is one point that Dr. Runge draws special attention to—viz., the marked favourable effect on the general condition of the patient produced by the heat thus applied to the interior of the uterus. This point was also especially noticed by Dr. Atthill.

In cases of non-puerperal hæmorrhage due to morbid growths, the good effects of the injections were but transient. The other effects of the hot water were not complained of by the patients, except in cases where there was extensive laceration of the external genital organs.

In non-puerperal cases of uterine hæmorrhage, Dr. Peter (*Jour. de Méd. et de Chir.*, Vol. XLVIII., p. 107) recommends hot water to the spine, and the hot bath for from two to three minutes. He has also seen most satisfactory results in case of *post partum* hæmorrhage from hot-water injections and ergotine.

The same subject is treated by Dr. C. Richter in the *Zeitsch. f. Geb. und Gynaek.*, Vol. II., Part. 2. He gives the results of 103 cases that occurred in the Charité Hospital, Berlin. The water contained one per cent. of carbolic acid, and was at a temperature of 122° Fahr. Except the use of ergot, this is the only treatment for *post partum* hæmorrhage at present adopted in that hospital, and it has never as yet failed, though now and then the injection has had to be repeated.

[To be continued.]

THE TREATMENT OF TRICHINOSIS.

ROHDE had a case of trichinosis in which severe bleeding of the nose occurred, and in which he prescribed extract of *secale cornutum* as a styptic. The hæmorrhage was immediately arrested and, with this, rapid improvement of the general symptoms also occurred. This result led him to prescribe ergot, in other cases of the disease, and in all instances distinct improvement followed. He believes, therefore, that we have, perhaps, in ergotin a means of treatment which, without having any marked effect on the human economy, may prove fatal to trichinæ and their offspring.—*Berliner klin. Wochenschrift*, No. 23, 1877; and *Practitioner*, Aug., 1878.

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL
SOCIETY.

FORTIETH ANNUAL SESSION.

Saturday, June 8th, 1878.

DR. DARBY, the President, in the Chair.

New Midwifery Forceps.

DR. KIDD.—I wish to bring under the notice of the Society a new pair of forceps, being the most recent development of that instrument with which I am acquainted. It has been devised by an old pupil of mine, at the Coombe Hospital, Dr. Anderson, who is now practising in Liverpool. He supposes that it combines the merits of Simpson and Barnes' curved forceps. I have, however, on many occasions laid before the Society my own reasons for preferring a straight instrument. It will be seen that Dr. Anderson adopts Simpson's handle in contradistinction to Barnes', but has omitted the plan Simpson was so fond of in all his instruments of having them roughened to indicate the direction of the curve. In some other points also, whether accidentally or not I do not know, Dr. Anderson's differs from both Simpson and Barnes' forceps. The cephalic curve is much less than in either, and the distance between the points of the instrument when closed is little more than three quarters of an inch, instead of an inch, as in the others. On the whole, I think the new instrument will prove slightly more dangerous to the child, as it will compress the head more than that of Simpson's or Barnes', but the horned handles may induce the operator to hold it near the joint, and so lessen the pressure.

Uterine Tumour.

DR. KIDD exhibited a large tumour, which had been removed by Dr. Thornley Stoker from a patient in the Richmond Hospital three days before, and said he was indebted to Dr. Stoker not only for the opportunity of showing the tumour, but for frequent opportunities of seeing and

examining the patient before the operation. The case was one the diagnosis of which involved a good deal of difficulty. To him, at least, the difficulty was very great, and he was ready to confess that, in the end, he did not feel able to give a definite opinion as to what the tumour really was. When he first saw the case he thought it was an ovarian tumour; but after repeated examinations, he doubted the correctness of that opinion. However, he saw at once that whether it was an ovarian or a uterine tumour, it was rapidly killing the patient, and that it was necessary it should be removed. The tumour, when removed, weighed $12\frac{1}{2}$ lbs. As it now lies on the table it seems to spring from the anterior portion of the fundus of the uterus, and encroach a very short way downwards on the anterior wall. The remainder of the uterus is free; when a finger of one hand is passed into the cavity, the posterior wall and the posterior part of the fundus become prominent, so that with the other hand placed externally these parts, as well as a portion of the anterior wall, can be felt, apparently unaltered in shape, size, or consistence. The anterior part of the fundus and upper portion of the anterior wall gradually expand into the mass of the tumour. There is no line of demarcation between them, no point at which it could be said the uterus ends and the tumour begins. The body of the tumour is round, perfectly smooth, and covered with a highly-polished serous membrane. In consistence it is soft and elastic, and gives to the finger a deceptive feeling of fluctuation, as if it were a thick-walled cyst containing fluid. So marked was this that, when the tumour was first exposed, those who were nearest to it exclaimed—"It is ovarian; there is the cyst;" and it was only when the trochar had been twice plunged into it, they admitted it did not contain fluid. At the upper and anterior portion of the tumour an outgrowth springs from it, which stands out abruptly, with a sharply-defined angle, and has attained a size somewhat exceeding that of a fully developed foetal head. This outgrowth presents, in even a more marked manner, the deceptive feeling of fluctuation. On the posterior and left side there is another prominence, more gradual in its growth, and having the appearance as if the tumour had gradually sunk into and moulded itself to some depression in the posterior wall of the abdomen, and perhaps this may have served as a sort of pivot, and so account for some of the peculiar and puzzling movements of the tumour when under examination. No sections have yet been made, so the exact nature of the tumour has not been determined. It is probably a soft myoma.

When the patient was examined, as she lay on her back in bed, the abdomen was found to be filled with, apparently, two tumours, one large mass filling the lower portion, but not sinking down into the pelvis, formed of the body of the tumour as now seen, and at the region of the umbilicus and above it, the smaller tumour, formed of the anterior out-

growth. The posterior prominence on the tumour was not recognised before the operation. The small tumour could be moved with great facility from side to side of the abdomen. It moved across the whole of the right side, but not so far to the left, and always returned to the mesial line from whichever side it had been carried. These movements seemed to take place independently of the large tumour; no motion could be felt in it by the hand, placed on the surface of the abdomen, and the first impression was that there were two separate and distinct tumours, one of which moved freely and the other not; but on passing the finger into the vagina the tumour could be felt, although very indistinctly, in the anterior *cul-de-sac*, lying in front of the body of the uterus; and when the small tumour was moved, it was discovered that the large tumour moved with it. It was thus established that instead of there being two tumours there was but one. This was the first point attained in the diagnosis. It was evident that there was a single, apparently fluctuating tumour, and that its pedicle was sufficiently long to admit of a very considerable amount of rotatory movement, and that the surface of the body of the tumour was so smooth as to allow of its moving freely without its being possible to detect the movements through the abdominal walls. Dr. Kidd said he had had experience of these conditions in several instances in ovarian tumours, but never before met with them in the case of a uterine tumour. Some years ago, he said, a patient went the round of the Dublin hospitals, who had a large abdominal tumour, with, apparently, a small tumour lying above the umbilicus. The small tumour moved so freely about that Dr. Tufnell, in describing its motions, said he could shoot it from side to side like a weaver's shuttle. The large tumour seemed not to move with it; at all events, no movement could be detected. The woman was twice in the Coombe Hospital, having made a round of all the hospitals. The first time she was in the Coombe she was examined very carefully, not only by the hospital staff but by many others interested in such cases, and all who saw her were of opinion that there were two tumours. After a considerable period, she came back in a dying condition, and died in the hospital, when it was found that she had but a single tumour, with an outgrowth on its upper portion; that it was an ovarian tumour, with a pedicle so long as to admit of free rotatory motion, and that the cause of her death was that it had revolved on its pedicle, and so twisted it that the vessels were strangulated and the tumour sphacelated. The full particulars of the case are to be found in the Proceedings of the Dublin Pathological Society. This case presented a very similar appearance. The small tumour could be shot from side to side, while the movements of the large one—at least until after repeated examinations—could not be felt. He had in the course of his experience seen but three cases presenting similar characters, and they all proved to be ovarian tumours; and, indeed, it seemed difficult to understand how

any other form of tumour could have a pedicle sufficiently lax to admit of such a degree of rotation.

Many of the other characters of the tumour now under observation favoured the impression that it was an ovarian one. There was an apparent fluctuation, quite as distinct as is found in many ovarian tumours, and so deceptive as to have induced a physician, under whose care she had been, to tap. It is true no fluid was obtained, but this is not infrequent in colloid and some other ovarian tumours. When asked as to the history of the growth, the patient described it as having begun low down and to the left side—not to have arisen on the mesial line, but to have grown from the left side, and gradually risen into the abdomen. This also corresponded with the character of ovarian tumours. On passing the sound into the cavity of the uterus it was found to be of normal length, measuring exactly two and a half inches, and its position was almost normal. It was probably a little thrown backwards, but was certainly neither introflexed nor retroverted. The cervix, when examined from the vagina, appeared to be normal, no enlargement of it being detected. Its position was normal and also its length. A fulness could be felt in front of the cervix, in the anterior *cul-de-sac* of the vagina; but this could not be identified with the uterus; and with a finger in the rectum and a sound in the uterus, with its point directed backwards, the whole of the posterior wall and the fundus of the uterus could be traced free from enlargement of any kind, as can still be done as the tumour lies on the table. Menstruation was normal. There had never been any flooding or excess of menstrual discharge, such as is ordinarily found in connexion with uterine tumours. That, of course, chiefly applies to tumours which press on the mucous membrane; for tumours pressing on the peritoneal surface are not, as a rule, attended with very profuse menstruation. When the stethoscope is applied over large uterine tumours a murmur, closely resembling the placental murmur, is often heard. It has been asserted this murmur has been heard in cases of enlargement of the ovary, but this is by no means established, and at all events there was no murmur to be heard in this case. For so far, the evidences are pointed to the tumour being an enlarged ovary, but the further examination threw a doubt on the conclusion—and, indeed, puzzled the observers not a little.

Usually when a sound is passed into a uterine movable tumour, the handle of the sound moves with the tumour when this is rolled from side to side. If it is rotated from right to left, the handle of the sound moves with it from right to left, and, in fact, follows it in all its movements. In this case it was invariably found that when the sound was in the uterus and the tumour rotated in any direction, as could be very easily done by pushing the anterior outgrowth from side to side, the handle of the sound moved in the opposite direction in a most marked

manner. This was to all the observers a new feature—one that had never before been met with. As the tumour lies now on the table, the explanation is obvious enough. The prominence low down on the posterior wall, which had sunk into a space at the side of the spinal column, and formed as it were a socket for itself, then served as a central pivot, on which the tumour rotated; and so, when the upper part was moved from right to left, the lower part went in the opposite direction and the sound with it; but during the examination the existence of this pivot was not known, and the explanation that offered itself as most feasible and most in accordance with the evidence already obtained as to the ovarian nature of the tumour, was that some adhesion had formed between the ovary and the posterior wall of the uterus, when the tumour began to form, and still lay in Douglas' space, behind the uterus, and thus the theory that the tumour was ovarian and not uterine was rather strengthened and not upset by the rotation of the handle of the sound. At a subsequent examination, however, he found that by a careful manipulation the lower portion of the tumour could be moved, and that the handle of the sound moved in correspondence with the movements of this portion. This at once upset all the preconceived theories as to the nature of the tumour, and led him to withdraw the rather decided opinion he had previously expressed as to its being an enlarged ovary and not a uterine growth. Perhaps no further doubt as to its being a uterine tumour should have been entertained; but it was difficult to arrive positively at this conclusion in the face of the evidence previously obtained. Nor did it seem desirable to subject the patient to much further examination, and in this doubtful position the diagnosis was left. It was evident, however, that the tumour was killing the patient. From the time of her admission into the hospital her circumference had increased nine inches. Ascitic fluid was beginning to form in the peritoneum, and the woman was evidently dying rapidly. When asked his opinion by Dr. Stoker, he declined to say definitely whether the tumour was uterine or ovarian; but he had no hesitation in saying it was killing the patient, and that an operation would be perfectly justifiable, provided she were willing to undertake the risk. He warned him, however, that if he determined on the operation, he should go to it prepared to remove the uterus itself. Accordingly, the patient having consented, the tumour was removed on Thursday last. The details of the operation will I hope be published by Dr. Stoker himself. Suffice it to say, the patient has gone on since without an unfavourable symptom, and has all the appearances of being about to make a most satisfactory recovery.

DR. ATTHILL.—This patient was not only seen by me but was in hospital under my care for several weeks, and I think on three different

occasions. From the first I entertained grave doubts as to the exact nature of the case, and, accordingly, I temporised, and took the course of sending her out of hospital for a month and admitting her again. The comparatively rapid growth of the case and the absence of anything like abnormal or increased menstruation, together with the apparently well-marked fluctuation, inclined me naturally to the opinion that I was dealing with an ovarian tumour. But when I came to examine the case and passed a sound into the uterus—the condition of which has been accurately described by Dr. Kidd—I found that the tumour and the uterus moved together, and that they were attached. The question was then resolved to this—either I was dealing with an ovarian tumour attached to the uterus, or with a uterine tumour proper. I told the pupils of the class the exact difficulties of the diagnosis, and said to them:—“We will make an exploratory tapping.” Accordingly, I drove a large-sized needle more than two and a half inches into the tumour, and obtained absolutely nothing, and hardly even a drop of blood. I was then satisfied that the tumour was solid, or nearly so. I had been previously satisfied that it was attached to the uterus. I recollected a case, which made a deep impression on my mind, of a somewhat similar description, in which there were well-marked fluctuations and absence of any menstrual disturbance, which was exhibited by the late Dr. Beatty at the meeting of the British Medical Association, in Plymouth, and which proved to be a large fibro-cystic tumour attached to the posterior wall of the uterus by a very short and thick pedicle. I came to the conclusion that I was dealing with a somewhat similar tumour, probably fibro-cystic, for I could hardly believe that there was not some fluid in some portion of the tumour. The last time I saw the patient in the Rotunda Hospital I did not think her a fit case for an operation, and discharged her, but asked her to return. She, however, sought admission into another hospital; and when I saw her again the greatest change that I noticed was the increased development of the smaller tumour. Although I refused to operate at the time, and still would not like to have operated, I think that, when the tumour was killing the patient, Dr. Kidd was justified in advising and Dr. Stoker in performing the operation.

DR. MACAN.—This case opens up the whole question of the diagnosis of fibro-cystic tumours. I had an opportunity of examining the patient in the Rotunda Hospital, and I was present when she was tapped, and nothing drawn off. As well as I remember the diagnosis seemed pretty certain that it was a case of fibrous disease of the uterus. The tumour was, however, so hard, that I differed with Dr. Atthill as to the idea that any fluid would be got from it. But the most interesting point is that, although this large tumour was growing from the uterus, the latter was still almost of the normal size; and Dr. Kidd will, perhaps, remember that he saw a case resembling the present, in the City of Dublin Hospital

last winter. It was a case in which, after a most careful examination, I came to the conclusion that the swelling was a multilocular ovarian tumour connected with the uterus by adhesion, and Dr. Kidd agreed with me; and yet the case turned out to be one of fibro-cystic disease of the uterus. Our reasons for the opinion at which we had arrived were, that the uterus was not enlarged, and that there was no history of menstrual disturbance or menorrhagia. There was the additional fact that the tumour was very fluctuating. I regret that that case was not tapped, for I look on the tapping of such cases as a great aid to diagnosis. If we are to believe American writers, the obtaining or not obtaining of fluid from these fibro-cystic tumours will often enable us to make a diagnosis. It is stated by an American writer that the fluid obtained from these fibro-cystic tumours is like blood, and coagulates when exposed to the air. Another interesting point is how far an examination, conducted with the whole hand or the half hand in the rectum, enables you to ascertain whether the tumour, though it may be clear of the fundus, is adherent to the uterus in front. The tumour I examined, and which was operated on in the City of Dublin Hospital, arose from the uterus by a very small pedicle, and was certainly a fibro-cystic tumour, as was ascertained by the *post mortem* examination, and also had an outgrowth. It was from these complications in the pelvis that I considered it adherent to the uterus. In that case a symptom that Dr. Kidd made out was that, when the sound was passed into the tumour, the whole tumour was lifted towards the diaphragm, and the sound also went up along with the tumour. Absolute diagnosis between these two kinds of tumours is almost impossible in some cases; but, as well as I remember, in the present case, when in the Rotunda Hospital, there did not seem to be a doubt that the case was one of fibro-cystic disease; and the getting no fluid by tapping was an important aid to the diagnosis.

DR. KIDD.—Tapping does not afford conclusive evidence that a tumour is not ovarian. I have myself tapped tumours and obtained no fluid; and yet, when those tumours were removed, they proved to be ovarian. In the first case of ovariectomy ever performed in Dublin I tapped the tumour, which was surrounded with ascitic fluid. The trochar went into the peritoneum, and the ascitic fluid escaped; but when it was driven into the tumour no fluid escaped. It was a colloid tumour; and when the tumour is of that character, no fluid may escape; so that I do not attach much importance to the non-escape of fluid.

On Puerperal Remittent, or Septicæmic Fever. By SURGEON-MAJOR JOSEPH JOHNSTON, M.D., Army Medical Department; in Medical charge of the Dublin Hospital for Soldiers' Wives.

EVER since the middle of the last century septic infection has been recognised as a fertile source of puerperal disease, and the pyrexia, or

febrile expression of the systemic intoxication it produces, has been described by various authors as a remittent or an intermittent type of puerperal fever. It is to this form of remittent fever I would now beg to invite the attention of this Society, and, in doing so, I shall endeavour to avoid re-opening for discussion the debatable subject of puerperal fever in general.

The main object of this paper is to present to you the records of a few cases of this puerperal septicæmic fever, illustrated with temperature charts, which will exhibit, at a glance, and more clearly than any description, the remarkably remittent type of this affection.

This fever is the result of one or more of those accidental occurrences with which child-bearing is associated, and is not, unfortunately, at the present time—whatever it may be in the future—altogether unavoidable, either in hospital or private practice. But, although sporadic in its origin, it becomes, I believe, freely communicable to others, and may develop into severe and fatal disease. The history of the outbreak of some epidemics of puerperal fever, in private practice as well as in hospitals, appears to favour this view; and, probably, no stronger evidence on this point could be desired than that of Dr. Robert Collins, who, in his work on Midwifery, page 386, states that “Doctor Joseph Clarke observed that previous to puerperal fever becoming epidemic in the hospital, patients recovered more slowly; or, to use the language of the nurses, it was much more difficult to get them out of bed than usual. This, from experience,” he says, “I have no doubt is the case.” The corroborative testimony of two physicians of such eminence is very suggestive, and appears to me to admit of the inference that in such instances there existed amongst the patients a febrile condition similar to the one now under consideration, which ultimately exploded into fatal disease.

Dr. Burdon Sanderson, in his recent Lectures on the Infective Processes of Disease,^a has shown that, “as regards peritonitis, if the exudation of a simple peritonitis be injected fresh into the peritoneum of another animal, the disease assumes a more intense form in the second than in the first; that if in this way the disease be communicated to several animals,” in succession, “at last a virus is obtained of which the virulence resembles that of the specific cases of malignant peritonitis in the human subject.” And he adds: “Experiments like those to which I have referred, which show how, by a gradual evolution, we may rise from traumatic infectivity to the intensified virulence of malignant septicæmia, teach us what we could not learn otherwise.”

M. d'Espine, in his monograph on Septicæmie Puerpérale, has further demonstrated, by careful experiments on the lower animals, that the injection of the filtered lochia of an infected puerperal patient produced septicæmia and death. The proof of infectibility is therefore before us,

^a British Med. Journal, Feb. 9, 1878. P. 181.

in the most indisputable form, and if we substitute "accidental for intentional selection," we can readily account for the propagation of septicæmic poisoning in the puerperal state.

All who are conversant with septicæmia are aware of the remarkable fluctuations of temperature that characterise this affection, and the late Dr. Stokes, whose loss we have so recently had occasion to mourn, describes—at page 197 of his classic work on Continued Fever—a type of fever he has observed amongst puerperal women, which he calls *Simulative Ague*.

His words are as follows:—"There are, doubtless, many other instances where a local irritation excites a fever, which, for a time at least, has all the characters of a true intermittent. Puerperal women are liable to this disease; I do not allude to the true puerperal fever, but I have often known women soon after childbirth to be attacked with well-marked tertian or quotidian fever, in whom it was difficult, or impossible, to discover any local disease of importance. In some there had been an abortive irritation, as it were—perhaps some tenderness of the uterus, which had been removed by treatment; or, in others, a tendency to inflammation of the breast—but these had subsided, and the intermittent fever persisted."

Dr. Playfair recently published a case of puerperal septicæmia with high temperature and distinct daily remissions. The case is worthy of brief notice. He says that on the 10th day of the illness, "and on each subsequent day, there was a distinct remission in the morning, when the temperature reached its lowest point, and the pulse improved; the temperature beginning to rise again at 1 p.m., reaching 104° or 105° by 3 p.m., and the pulse becoming extremely rapid and feeble." Having failed to observe any distinct antipyretic effect from large doses of quinine and salicylic acid, and the continued use of cold for several days, he adds: "Being struck with the marked remittent type the fever had now" (15th day) "assumed, I determined to try the effect of a remedy of high repute in India in the worst cases of malarious remittent fevers, and the most marvellous effects of which, in such cases, I had myself witnessed many years ago when in India."^a This was the well-known Warburg's Tincture, which produced profuse sweating, and reduced the temperature from 104° to 99°, and the pulse from 140 to 96 within seventeen hours.

In the exhaustive discussion "On the Relation of Puerperal Fever to the Infective Diseases and Pyæmia," which took place at the London Obstetrical Society in 1875,^b Dr. Richardson is reported to have said:—"I have seen another form of puerperal fever (many will recall similar cases), of what may be called a remittent character, with slight symptoms

^a *British Med. Jour.*, Nov. 17, 1877.

^b *Obstet. Trans.* Vol. XVII. P. 125.

of jaundice; twice I have seen this coming on with high fever in the puerperal state."

I shall neither weary you nor burden this paper with extracts from the innumerable authors who have, of late years, written on puerperal fever, but shall ask your forbearance whilst I make two quotations from two very able observers in the last century. Dr. Leake, of the Westminster Lying-in Hospital, published an essay in 1772, entitled "*Practical Observations on the Childbed Fever.*"^a The remittent character of some cases he describes as follows:—"Sometimes there was a manifest remission of the symptoms, but when that was not attended with a universal sweat, or copious discharge of turbid urine, it was seldom lasting; in short, when the secretions are only partially promoted the crisis is imperfect, and the patient is subject to relapses." Again—"Others were affected" (during convalescence) "by a slow remitting fever, with great loss of strength and dejection of spirits." And at page 201, after describing the successful treatment of a remittent case in the latter stage with bark, he continues:—"From what may be observed in the foregoing history it does not appear eligible to wait for a distinct intermission of this fever, lest a severe attack of the febrile paroxysm should in the meantime carry off the patient. I think a remission of the symptoms, especially if attended with any critical evacuation, is, in general, sufficient to justify the liberal and immediate use of the bark."

In 1775 Dr. Butler published a monograph, entitled "*An Account of Puerperal Remittent Fevers as they appear in Derbyshire,*" &c.^b He says:—"The pulse is low, small, sometimes sharp, and generally beats about a hundred and thirty pulsations or more in the minute during an exacerbation. . . . There is, in some cases, an offensive smell about the patient, unless the room be kept cool, the linen often changed, and sometimes the whole bedding. . . . Sometimes the breasts are swelled, hard, and very painful, and sometimes the womb is affected with inflammation; but both cases are accidental, and not necessarily connected with this fever. . . . There is an irregular, feverish exacerbation once or twice a day, and sometimes oftener. The paroxysm is preceded by a violent rigor, much oftener by a chilliness without tremor, and sometimes the hot fit comes on without any sense of coldness. . . . These exacerbations are usually terminated by sweats, which are sometimes partial, sometimes general, but never critical, and tend more to debilitate than relieve the patient."

I shall now submit to your notice a temperature chart of what I consider a typical case of an uninterrupted convalescence after childbirth. By means of this we shall be the more able to comprehend the value of the charts I shall produce in illustration of the remittent type of this

^a Syden. Soc. *Diseases Peculiar to Women.* P. 136.

^b Syden. Soc. *Diseases Peculiar to Women.* P. 337.

It is not unusual to observe, as in this case, a morning rise and an evening fall in the temperature during the third, fourth, and fifth days, but more frequently the rise takes place in the evening, and the fall in the morning.

The following six cases of puerperal septicæmic fever have occurred in my hospital and private practice during the last eight years. They were, with the exception of the first, accurately observed and recorded at the bedside. They may also, in some degree, be considered as selected and typical cases of the remittent form of this fever, as my other cases are incomplete, and therefore devoid of character:—

CASE NO. I.—In January, 1870, my attention was particularly absorbed in a case of childbed fever, in the treatment of which I had the able advice of my friend, Dr. Kidd, and of the late illustrious physician, Dr. Stokes. I regret that no notes were recorded during the progress of the case, but I can, even now, recall its most prominent features.

This lady was delivered by me of her fifth child (male) on the morning of the 1st January. The labour was easy and natural, but the perineum was slightly fissured. On the afternoon of the 3rd, soon after the bed-linen had been changed, she shivered, and became very feverish. There was no local pain. During some days we noticed very marked remissions in the fever, and that the temperature rose to 104° and 105° during an exacerbation, of which there were two in the twenty-four hours—viz., one about noon, which was followed by a slight remission within a few hours, and a second late in the evening, which terminated towards morning, by perspiration, in a decided defervescence of about three degrees. The lochia were normal, and there was no diarrhoea; but the secretion of milk, which was at first abundant, became suppressed during the illness.

On the day this patient shivered, one of her children sickened, and finally passed through a slight attack of scarlet fever. A second child subsequently suffered from shedding of nephritic epithelia.

In early life our patient had passed through a severe attack of scarlet fever, but throughout this illness we could not observe any symptom of that disease. A few years previously she had resided in India, but had never shown any symptoms of malarial fever. It was, however, thought by us that this duplex remittent type of fever might have a malarial sustaining cause, whatever the initiative or exciting one had been, and we therefore agreed to try the effect of quinine. Thirty grains were accordingly administered in two doses in the afternoon and evening of that day, and on the following morning we had the satisfaction of finding our patient with a temperature and pulse almost normal. There was no subsequent return of the fever, but a localised pelvic cellulitis ensued, which terminated in an abscess. This cellulitis may have existed in a very limited form from the outset of her illness, even although it was not

detected until the progress of the fever was arrested. I have, however, no doubt that this was a case of auto-infection, and that the double quotidian type of fever was caused by the malaria which existed in the patient's system. Many of you may recall similar instances where inflammatory affections have developed intermittent forms of disease in those who have resided within the tropics, and may not, whilst there, have manifested any symptom of malarial infection. Subsequent observations have, however, led me to attribute less value to the supposed malarial factor in this case than I did at the time, as I have since then witnessed cases in which there had been no exposure to malarial influence characterised by equally high recurring flights of temperature, and one, at least, in which they were considerably in excess of any observed in this instance. I have not, however, met with a second example of this double quotidian in the puerperal state, but Wunderlich makes the remark that, in remittent diseases of great intensity, "if the exacerbations are duplicated from the very commencement, the type of disease is generally mixed, and of itself affords grounds to suspect complications."^a

This case would be incomplete were I to abstain from mentioning what I witnessed after the administration of the second dose of quinine, which was in excess of its requirements. It caused great debility and irregularity of the heart's action, and the patient sat, supported in bed, for more than half an hour, gasping for breath, and in an agony of despair.

Another case fainted when she came under the influence of quinine; and Pereira mentions that dangerous consequences have been recorded by Bouchardat from the use of large doses of this drug.^b

CASE No. II. is an example of the quotidian type of puerperal remittent.

Mrs. T., aged twenty-one, was delivered of a girl on the morning of the 3rd November, 1876. Head, first position; natural labour; first stage, 5 hours; second stage, 1 hour; third stage, 5 minutes; fourth pregnancy. On the morning of the 5th a dose of castor-oil was administered, and during the forenoon she had a succession of rigors, followed by high fever, pain in the brow and vertex, pain and tenderness in the lower part of the abdomen, pains in the back and limbs, and great prostration. The lochial discharge was natural, and not foetid, and the breasts were moderately distended. By evening her bowels had been freely moved, and 1 gr. of opium, with liq. acet. ammoniæ mixture, was then ordered every fourth hour. Poultices were applied to the abdomen.

6th.—Had little sleep. The pain and tenderness over the uterus still exist. Temp. 106°; pulse 136. Evening.—The headache and pains in the limbs have gone; the abdominal pain has extended to the left iliac region, and she feels chilly. Temp. 101·4°; pulse 100.

^a New Sydenham Society. Page 239.

^b *Materia Medica*. Vol. II., part 2, page 131.

7th.—Morning temp. 103.2° ; pulse 116. She sweated last night; the headache and pains in the limbs have returned, and the milk is insufficient for the infant. In the afternoon the temperature rose to 106.2° , and the pulse to 140. At 8 p.m. the temperature was 105.2° , and the pulse 136.

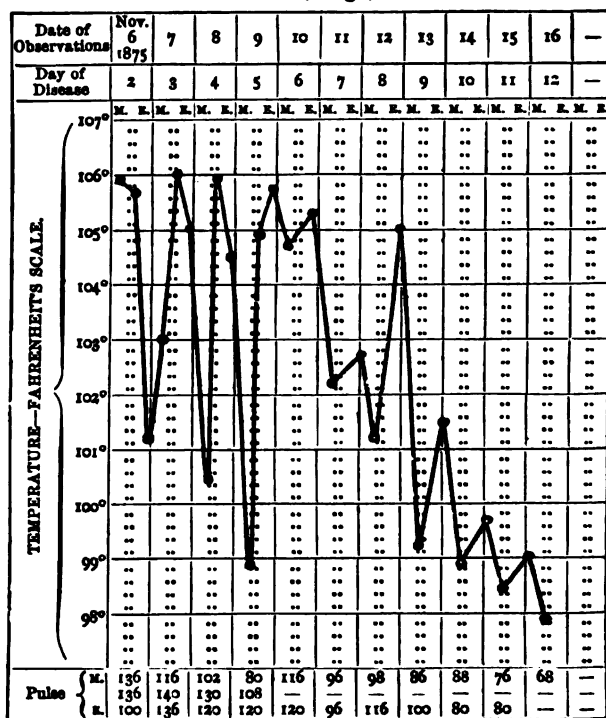
8th.—Morning temp. 100.6° ; pulse 102. Rigors at 2 p.m. At 4 p.m. the temperature was 106° , and the pulse 120; at 8 p.m. they were 104.6° and 120. The lochia were pale, but in sufficient quantity; not foetid.

9th.—Sweated last night; temp. 99° , and pulse 80. Is quite free from abdominal pain and tenderness. Evening.—Temp. 105.8° ; pulse 120.

10th.—Morning temp. 104.8° ; pulse 116. Evening temp. 105.4° ; pulse 120.

RECORDS OF TEMPERATURE AND PULSE.—II.

Mrs. T.; Age, 21.



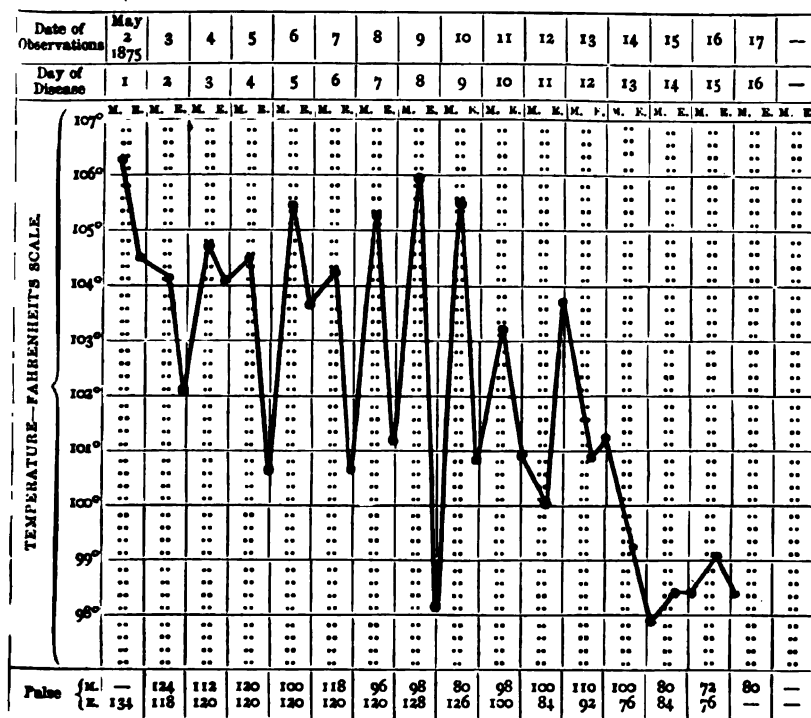
All pain has subsided. To have five grains of quinine in solution every four hours; opium to be omitted. After this her convalescence was uninterrupted, except on one evening when there was a flush of tem-

perature. By the morning of the 13th she was quite deaf from the quinine, and smaller doses were subsequently administered. Diarrhoea was troublesome for some days during her convalescence, but this was finally arrested by a dose of the extractum ergotæ liquidum and liquor morphiæ hydrochloratis. On the morning of the 16th the temperature was 98°, and the pulse 68.

CASE No. III. is also an illustration of the quotidian type, but with a somewhat lower range of temperature, and presenting, during the first few days, less decided remissions.

RECORDS OF TEMPERATURE AND PULSE—III.

Mrs. H.; Age, 26.



Mrs. H., aged twenty-six, was delivered of her first child, a male, at 5 a.m., 29th April, 1875. Head, first position; first stage, 4 hours; second stage, 1 hour; third stage, 15 minutes. The perinæum was ruptured, and the edges were brought together with two carbolised sutures. The infant was cyanotic, and died at 2 a.m., 1st May.

May 2nd.—She had a rigor in the evening, after which the tempera-

ture rose to 106.2° , and the pulse to 134. There was headache, but no abdominal pain.

3rd.—Morning temp. 104.4° ; pulse 124. There is tenderness over the uterus, and the abdomen is tympanitic; the lochia are scanty and foetid. The uterus was syringed with Condyl's solution, and the subsequent treatment was similar to that pursued in the preceding case. In the evening the temperature was 104° , and the pulse 118.

4th.—Morning temp. 102° ; pulse 112; lochia very foetid; syringed uterus with Condyl's solution; drew off the milk from the breasts, and strapped them. Evening temp. 104.8° ; pulse 120.

5th.—Morning temp. 104° ; pulse 120. The abdominal pain and tenderness have subsided. Omit pills, and begin quinine. Evening temp. 104.4° ; pulse 120.

6th.—Slept well; temp. 100.6° ; pulse 100; lochial discharge pale, but no longer foetid. Evening temp. 105.4° ; pulse 120.

7th.—Morning temp. 103.6° ; pulse 118. Evening temp. 104.2° ; pulse 120.

8th.—Morning temp. 100.6° ; pulse 96. Evening temp. 105.2° ; pulse 120.

9th.—Morning temp. 101.2° ; pulse 98. Shivered in the afternoon, and the abdominal pain and tenderness returned. Poultices were re-applied, and opium administered. Evening temp. 105.8° ; pulse 128.

10th.—Morning temp. 98.2° ; pulse 80. Sweated last night, and is now deaf from quinine. Discontinue medicine. Evening.—Had slight shivering in the afternoon; temp. 105.4° ; pulse 126.

11th.—Morning temp. 100.8° ; pulse 100. From this date there was a rapid convalescence, and on the morning of the 17th the temperature was reduced to 98.4° , and the pulse to 80.

CASE IV.—Is also an illustration of the quotidian type, in which the oscillations of temperature have a much lower range than in either of the preceding cases.

Mrs. B., aged thirty-three, was delivered of her first child (a girl) at 9 p.m., 26th December, 1873. The membranes ruptured early; first stage, 18 hours; second stage 2 hours; 3rd stage, 10 minutes. The expulsive pains were very strong, and the perinæum, which was rigid, was ruptured. Two carbolised sutures were inserted. On the evenings of the 28th and 29th the temperature rose to 100° ; the lochia were in sufficient quantity, but slightly foetid. The vagina was syringed morning and evening.

On the morning of the 1st January, 1874, the temperature rose to 102.6° ; and, as the lochia continued foetid, I syringed the uterus with Condyl's solution. A few mucous shreds and minute clots came away. In the afternoon she shivered, and the temperature rose to 104.5° , but the pulse was only 98.

2nd.—Morning temperature, 99.8° ; pulse, 84. Evening tempera-

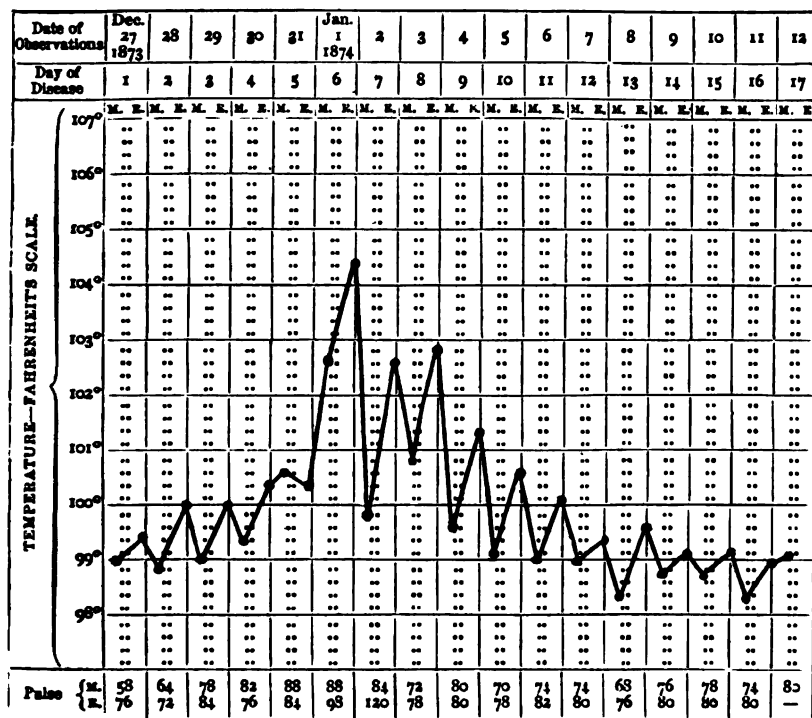
ture, 102.6°; pulse, 120. Ordered a mixture containing liq. ammoniac acetatis every two hours.

3rd.—Sweated profusely last night. Morning temperature, 100.8°; pulse, 72. To have 5 grains of quinine twice a day. Evening temperature 102.8°; pulse 98. She sat up for two hours in the afternoon.

4th.—Sweated last night, but was up and dressed by ten o'clock this morning. Morning temperature, 99.5°; pulse, 80. Evening temperature, 101.4°; pulse, 80. The defervescence continued daily until the 11th, when it reached 98.4°. On the 12th she was discharged from the hospital. The temperature was 99.2° and the pulse 80 on that morning.

RECORDS OF TEMPERATURE AND PULSE—IV.

Mrs. B.; Age, 33.



Remarks—This illustrates a very mild type of the disease, not more interfered with by treatment than was necessary to direct it towards a satisfactory termination; but it is one of those cases which are apt to escape observation if not under supervision in an hospital, where the evening exacerbations can be observed. The morning temperatures and pulse were usually low, and the patient then looked comparatively well.

CASE V.—Is an example of the tertian type. The temperature in this case never rose to a high elevation, nor were the daily oscillations ever great, but the persistence of a mean daily temperature of 102° and a rapid pulse for several successive days, caused me much anxiety.

Mrs. M., aged twenty-six, was delivered with forceps of her first child (a girl), at 9 45 p.m., 11th December, 1873. Head, first position; first stage, 12 hours; second stage, $1\frac{1}{2}$ hours; third stage, 10 minutes. The expulsive pains were feeble, and the perinæum was ruptured during delivery. Two carbolised sutures were inserted.

12th.—Passed a sleepless night. Temperature, $100\cdot8^{\circ}$; pulse, 120. Drew off urine. Liq. ammon. acet. mixture every third hour. Evening temperature, $101\cdot2^{\circ}$; pulse, 120.—Opiate.

13th.—Slept well. Temperature, $102\cdot5^{\circ}$; pulse, 120. Free from pain. To have an aperient and to continue the mixture. Lochia abundant and not fœtid. Vagina syringed with Condy. Evening temperature, $102\cdot5^{\circ}$; pulse, 134. Bowels not moved.—Repeat aperient.

14th.—Freely purged during the night. Motions dark and offensive. Lochial discharge copious and grumous, but not fœtid. Syringed uterus. Morning temperature, $101\cdot4^{\circ}$; pulse, 115. Evening temperature, $103\cdot8^{\circ}$; pulse, 134.

15th.—The skin is very sallow and exhales a most disagreeable earthy odour. Milk suppressed; lochia scanty. To have 5 grains of quinine every fourth hour. Morning temperature, $101\cdot8^{\circ}$; pulse, 114. Evening temperature, $103\cdot5^{\circ}$; pulse, 134.

16th.—Morning temperature, $102\cdot4^{\circ}$; pulse, 108. Continue quinine. Evening temperature, $103\cdot8^{\circ}$; pulse, 124. Is very desponding and sighs frequently.

17th.—Had little sleep last night. Became very faint towards morning and broke into a copious perspiration. Is well under the influence of quinine. Passed urine for the first time unaided. To have 5 grains of quinine in the forenoon and afternoon. Morning temperature, $100\cdot8^{\circ}$; pulse, 104. Evening temperature, $101\cdot2^{\circ}$; pulse, 122. Opiate at bedtime.

18th.—Slept for three hours and sweated freely. Morning temperature, 102° ; pulse, 116. Evening temperature, 104° ; pulse, 120. Is very desponding and determined not to sleep, but wishes to die and be in heaven by morning.

The tertian type of this fever was now fully established, and my patient appeared to be in a very critical state. Observing, however, that the thermometrical range had increased considerably under the use of the quinine, she was kept under its influence, whilst an effort was made to promote excretion by the usual channels. Opium was withheld, but a draught of hydrate of chloral was entrusted to the nurse, to be given when there was any appearance of nocturnal wakefulness.

It will be observed on the chart that the highest temperatures were recorded on the evenings of the 14th, 16th, 18th, 20th, 22nd, and 24th, and the lowest after the 14th, on the mornings of the 15th, 17th, 19th, 21st, 23rd, and 25th. After this, as daily convalescence advanced, the type changed into a quotidian. Her recovery was not, however, complete till the 12th January, when the temperature had fallen to 98.4° and the pulse to 80.

This patient suffered severely for several days from diarrhoea. After many fruitless efforts it was finally arrested by means of ergot and morphia.

Remarks.—It is more than probable that the first stage of this labour, which lasted twelve hours, was exhaustive, as the patient appeared to be too feeble, during the second stage, to complete it without assistance; and I am more inclined to refer the cause of her subsequent illness to the bruising of the tissues during the first stage of the labour than to infection from anything that might have lodged in the uterus, or have come in contact with the ruptured perinæum.

The tertian type of septicæmic fever is not, in my experience, an unusual form among puerperal women; but this was the most characteristic, and, at the same time, the worst case that has fallen under my observation.

CASE VI.—Is a typical instance of a quartan remittent. It is the only case of the kind I have observed, and, like Case V., was protracted and severe.

Mrs. M., aged twenty-nine, was delivered of a girl at 2 a.m., 9th Oct., 1875. Head first position. First stage, 4 hours; second, 2 hours; third, 10 minutes. Fifth pregnancy, two of which were abortions at the third month.

10th.—Had a severe rigor in the early morning, which was soon followed by headache and abdominal pain and tympany. The temperature shot up to 102.8° and the pulse to 136. A dose of castor oil and an enema were administered, and poultices were applied to the abdomen. After evacuation of the bowels 1 grain of opium was given every third hour. In the evening the temperature was 104° and the pulse 136.

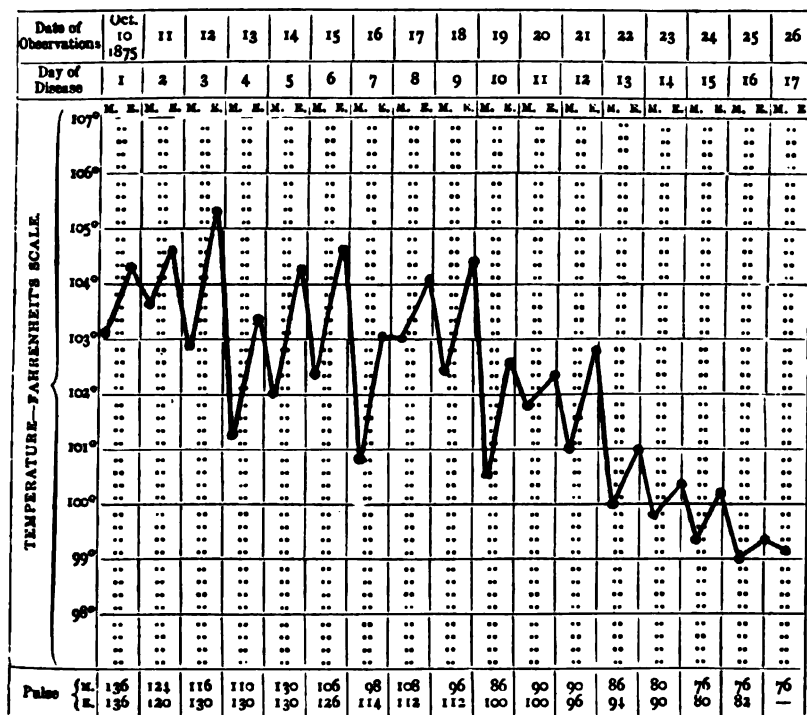
11th.—Less pain and tympany; lochia scanty, but not offensive; temperature, 103.4° ; pulse, 124. Continue opium and poultices. Evening temperature, 104.4° ; pulse, 120.

12th.—The pain and tympany have almost subsided. Continue pills. Temperature, 102.6° ; pulse, 116. Evening temperature, 105° ; pulse, 130. The temperature this evening was the highest recorded during the progress of the case; but on the evenings of the 15th, 18th, and 21st, it rose higher than on any of the intermediate days, and fell much lower on the following mornings—viz., on the 13th, 16th, 19th, and 22nd, than on any of the previously intervening mornings. The tracings on the

chart render this very apparent. During the night preceding the fall of the temperature recorded on the mornings of the 13th, 16th, 19th, and 22nd, she had either a profuse perspiration or a copious discharge from the bowels.

RECORDS OF TEMPERATURE AND PULSE—VI.

Mrs. M.; Age, 29.



On the 16th, there was very little milk in the breasts, and in the morning she shivered.

17th.—I had hoped, with the apparent tendency at crisis yesterday, to have watched the natural evolution of this case without interrupting its course by means of any antipyretic remedy; but, after the rigor of last night, and finding the temperature this morning at 102·8°, I ordered three 5-grain doses of quinine daily.

19th.—She sat up for two hours.

22nd.—Morning temperature, 99·8°; pulse, 86. Is well under the influence of quinine. Dose to be diminished.

During several days, towards the end of her convalescence, she suffered from diarrhoea, which was finally arrested by ergot and opium.

General Remarks.—The condition of the puerperal woman has been described by many authors as peculiarly favourable to disease; and the late Sir J. Y. Simpson* probably expresses this state and susceptibility as explicitly as anyone in the following paragraph:—"During the puerperal condition," he says, "the blood is more loaded with new materials, intended, some for excretion, and some for secretion, than at any other term of life; and hence is specially liable to diseased changes under the superaddition of any exciting or septic causes. For the uterus, during the first weeks after delivery, is becoming involved and absorbed by a kind of retrograde metamorphosis, and the effete materials resulting from its disintegration necessarily first pass into the blood before they are discharged from the system. There is an excretory action going on in its interior in the form of the lochial discharge; and the elements for the formation of a new and important secretion—the milk—are present in the circulation." It requires a very trifling cause to interrupt these healthy processes and to induce febrile symptoms, and this cause has to be inferred rather from subsequent observation of the symptoms of the case than from anything noticeable at the outset. In analysing my cases, I am of opinion that, in all of them, the disease had probably a septic origin from within and not from without. The first case may be doubtful; but the patient's illness did not resemble, in any respect, scarlet fever, and the fissured perinæum afforded sufficient opportunity for self-infection by means of the lochia. In three of the cases the perinæum was injured during delivery, and in two of these the lochial discharge was foetid.

Offensive lochial discharge may be considered an evidence of disintegration of clots or tissues, and a sure source of infection; but recent observations and experiments have rendered it more than probable that healthy lochia may also be charged with septic poison, and only require an abraded or fissured surface for its absorption and the development of febrile symptoms, similar to those I have narrated.

The experiments of d'Espine upon the lower animals have, apparently, put this beyond a doubt; for he has shown that the injection of filtered inodorous lochia has produced symptoms of puerperal toxæmia; and he has likewise proved to demonstration that the lochia of or about the third day are more infectious than that of later days, and, seemingly, from the presence of bacteria in the lochia about that time.

The recent lectures of Dr. Burdon Sanderson, in *The British Medical Journal*, "On the Infective Processes of Disease," are pregnant with valuable information relative to the infectivity of the lochial discharge, inasmuch as the presence of bacteria in healthy lochia must suggest the possibility of septic infection, provided there is a raw surface to admit of absorption. Without following his argument or producing his convincing

* Selected Obstet. Works. By Dr. J. W. Black. Page 553.

evidence in support of the influence exerted by bacteria in changing fluids from an innocuous to a deleterious quality, I shall read to you what he calls the "fundamental proposition" of his lecture—viz., "That septicæmia is *not* due to the direct action of living bacteria on the blood and tissues."* He says, "Although bacteria are not the agents in septic infection, they are, nevertheless, the producers of the septic poison, and that the mistake, if any mistake have been committed, consists in this—not in stating that bacteria are of pathological importance, but in asserting that because A produces B, and B produces C, therefore C cannot be produced unless A is present. It would, I think, be erroneous to say that the yeast-plant is the agent in the production of the evils of intemperance; and it is a mistake to say that bacteria are the agents in the production of septicæmia; but, just as if there was no yeast-plant there would be no drunkenness, so if there were no bacteria there would be no septicæmia."

In Cases II., III., and VI., there were abdominal pain and tympany; in II. and VI. there was severe headache; and in Cases I., II., V., and VI. the secretion of milk was either greatly diminished in quantity or quite suppressed. In Case V. there was a most offensive exhalation from the skin, which was sallow; and in Case I. a pelvic abscess formed. In all, the feverish symptoms were ushered in with rigors or chilliness, and the exacerbations were usually preceded by a feeling of cold or a distinct rigor. Sweating was of frequent occurrence at night, especially when there was an effort at a decided remission; but a crisis was only observed in Case I., and it was induced by the antipyretic influence of quinine. In four of the cases there was considerable diarrhœa during convalescence, and the evacuations were always offensive.

Cases I., II., and III., presented a very extensive daily range of temperature, but were not attended by the same intensity of physical and mental prostration observed in Cases V. and VI. This wide range was the cheering feature of the cases, and imparted a confidence in the ultimate safety of the patients which neither the pulse nor any other condition afforded me. This is confirmatory of the experience of Dr. Clifford Allbutt in septicæmic fevers. He says—"Amid much that is obscure we may notice, as a rule, that disturbances having a high initial velocity are sooner expended than those in which it is lower."†

The temperatures were, as a rule, taken by means of self-registering thermometers placed in the vagina, as such observations are less liable to error than those taken in the mouth or axilla.

Treatment.—At the outset the bowels were freely relieved by an aperient; and, if there was abdominal pain, opium was administered frequently and poultices applied until all tenderness had subsided. If

* *British Medical Journal*, January 5, 1878.

† *Practitioner*, January, 1874. Page 29.

the lochial discharge was fœtid, or there existed any liability to absorption from decomposing uterine contents, or from ascertained or suspected injury to the uterus or vagina, the interior of the uterus or the vagina was freely washed out with tepid water, containing permanganate of potash.

Having shown you, on the authority of d'Espine, that the source of infection is always present in the lochia, from the second to the fourth day particularly, it is only necessary to recollect that an abrasion or injury of the uterine neck or vagina affords sufficient opportunity for the absorption of the septic poison. The vaginal mucous membrane, if uninjured, appears to be incapable of absorbing this ferment; and it is highly improbable, from the observations of Dr. Atthill with iodoform, that it is at any time an absorbent surface. Blood-clots in the uterus, or portions of retained membranes or placenta, must necessarily be a frequent source of infection, from being in contact with the placental surface. The odour from such discharge will, consequently, attract immediate attention; but the inodorous lochia, teeming with bacteria and bathing the injured vagina with septic products may, however, equally infect our patient and produce alarming results. It is in those cases that frequent vaginal irrigation is productive of those happy results we observe in practice.

The practice of washing out the uterus and vagina with an antiseptic is one of the deservedly popular fashions of the present day; but it was frequently resorted to during the latter half of the last century, and it seems surprising how it should have fallen into disuse. Dr. Barnes mentions that "it was practised and taught with success by Harvey."^a Dr. Young, of Edinburgh, was also a strong advocate in its favour; and Dr. White says—"I must not omit to mention, in this place, the good effects I have experienced from emollient or antiseptic injections into the uterus. In those cases where the lochia have become acrid or putrid, and, by being absorbed into the circulation, have served as a constant fomes to the disease, I have by this means known the fever much assuaged, and, in many cases, wholly extinguished; for though, as I have before observed, the quantity of the lochia is not to be much regretted, the quality of this discharge is a matter of infinite importance."^b

By correcting the quality of the lochial discharge the fever may often be cut short; but, in the cases I have narrated, such a happy result did not ensue, and the fever assumed the very marked remittent type so accurately described by Dr. Stokes, and so appropriately termed "simulative ague." It is in such cases, and after the subsidence of local complications, that the antipyretic effect of quinine is observable. Dr. Clifford Allbutt contributes a very valuable article on the antipyretic action of

^a *Obstet. Trans.* Vol. XVII. P. 140.

^b *On the Cure of Puerperal Fever.* 3rd edition. 1785. Page 223.

quinine in *The Practitioner* of January, 1874, in which he states that it is a very powerful antipyretic in the remittent pyrexia of septic absorption, but that it is preferable to moderate the paroxysms rather than attempt to suddenly interrupt them. And he makes this valuable observation with regard to the pyrexia of septic fever :—"It is certainly true, however, that small gains in daily temperature are very large gains in time, and that, as we descend the scale in daily temperature, we get largely-multiplied increments of immunity."

With the exception of the first case, I have never attempted to suddenly interrupt this fever, but have gradually brought my patients under the influence of quinine, with doses of 5 grains, administered at intervals of a few hours. The quotidian type is the most susceptible to the antipyretic influence of this remedy, even although the temperature range is higher than in the tertian or quartan form. It is, therefore, highly probable that the systemic intoxication is more intense in the latter than in the former.

The diarrhoea is sometimes very profuse and obstinate, but I have found no remedy so efficient in restraining it as the extractum ergotæ liquidum and morphia, which was first suggested to me in one of the cases by my friend, Dr. Banks.

DR. M'CLINTOCK.—Dr. Johnston's cases did not occur about the same time. We are not to regard them as representing, in any way, an epidemic, for they are spread over six or seven years, and I presume that they were not the only cases of puerperal fever that Dr. Johnston met with during that period, but that he has selected them on account of their similarity of character. Now, the point of most interest with regard to these cases is their nature. How are we to regard them? Was it a remittent fever accidentally occurring in the puerperal state, or a form of that complex, multiform disease, puerperal fever? A remittent character is common to nearly all fevers. We see it in surgical fever, suppurative fever, hectic fever, gastric fever, and various others. It is not to be wondered at, therefore, that puerperal fevers should occasionally assume this character, or in more or less marked character. One of the results of Dr. Johnston's minute and careful observations is to show the remarkable periodicity of these pyrexial accessions. I myself and most others who have been in the habit of observing puerperal fevers have remarked, from time to time, cases in which there was very little local lesion, but a great deal of fever, and that these cases are sometimes very fatal. Over thirty years ago, when I was an assistant in the lying-in hospital, we often met with cases of this kind, in which there was no local pain or inflammation, and no vomiting, but rigors and severe fever, with an accession of the fever in the morning or in the evening. These cases were then regarded as cases of pyæmia; and when the patient died

there was generally no sign of peritonitis, but the uterus would be somewhat enlarged; and, on cutting into it, we observed purulent spots and pus issuing from some of the sinuses. These cases were first described by John Clarke, a great many years ago. Cases of this kind, I presume, we all have met with; and I think it is very well to distinguish this phase or variety of puerperal fever by the name of puerperal remittent. But, if I had been putting a title to Dr. Johnston's paper, I would have left out the word "septicæmic" altogether. That theory of the septicæmic origin of these cases is at present *sub judice*; and it is premature to come to any positive conclusion regarding it. If the fever be produced by the absorption of septic matter, through some abrasion of the vagina, the marvel is how any woman in her first confinement can escape septicæmia; for, in all such cases, there is invariably more or less laceration of the perinæum or orifice of the vagina. That this fever arises from vitiation of the fluids I am quite prepared to admit; I believe that to be the sound and correct theory, well supported. There is nothing very new in that. Dr. Johnston quoted various older authors, including White, Butler, and others, who have distinctly laid down that it is the poison introduced into the blood that gives rise to the fever. The first person who formulated this doctrine and examined it thoroughly and scientifically was the late Dr. Ferguson, in his masterly and classic essay on puerperal fever. After a full investigation of the subject, with such data as were available at the time, he deduced three conclusions—namely, 1, that the phenomena of puerperal fever originate in vitiation of the fluids; 2, that the causes capable of vitiating the fluids are particularly rife after child-birth; and 3, that the various forms of puerperal fever depend upon this one cause, and were deducible from it.

In the course of our practice we meet with cases occasionally which very much upset and confound our theories. Four years ago I attended a lady in her first confinement. Dr. Denham was with me, and we delivered her with the forceps. She had abundance of milk and went on very well until the sixth or eighth day, when she began to suffer from a quotidian remittent fever, which went on for several days. I could not find any cause for this *quoad* in her puerperal state. I had discerned a disagreeable smell in a corner of the room, which I ascertained was attributable to some leakage of gas. The lady went on for days in the same way, and I became a good deal alarmed about her state. I had her removed into another room, and thereupon the febrile affections were at once reduced in frequency, recurring only every third or fourth day, and she became very much improved. This went on for two or three returns; and then, at the end of a fortnight, I determined to take the bold step of sending her out of town. Accordingly, I had her carefully taken down in a carriage to Kingstown, using every precaution against cold. She had not been three weeks confined at the time this

took place. The day after she went there she had one of her usual attacks of fever, between twelve and two o'clock—but it was not so severe as any of the preceding attacks, and she never had another. She recovered perfectly, and has had two or three children since. Now, I ask, was this a remittent fever of septicæmic origin? If so, why did it so instantly cease under change of air?

DR. ATTHILL.—Dr. M'Clintock has raised the question of the causation of puerperal fever. Into that debated question I do not enter further than to say that I think it would be a great pity if we were to omit the term septicæmia. Of this I am perfectly satisfied that there are but three origins of septic fever. One is by the direct introduction into the system of the patient of the septic matter, either by the hands of the attendant or by the inhalation of noxious vapours. That which is commonly called self-generated septicæmia is where the woman is supposed—as they occasionally do—to inoculate herself by discharges from the uterus passing over lesions of the genital organs. Then, there is that form of septicæmia which is generated by the patients themselves in the manner alluded to by Dr. Ferguson, whom Dr. M'Clintock quoted. Dr. Johnston in his paper has alluded to the fact of the system of the mother being loaded with the products of the retrograde metamorphosis which goes on after parturition. I believe, myself, that the fluids themselves become thoroughly disorganised, and that the patient inoculates herself through the fluids. I am aware that I am expressing myself very vaguely, but if we assume that infection passed from the hand of the attendant, or by inoculation through the genital organs, conditions similar to the conditions which are produced by that inoculation may spring up in a puerperal woman after delivery. I am strongly of opinion that every form of pyrexia occurring after delivery partakes more or less of an intermittent character. I have a few bed cards, taken at random from the file of the Rotunda Hospital, from which one or two remarkable facts appear. One relates to a patient who was delivered last January after natural labour. She was attacked with milk fever; that is, she simply had considerable pyrexia, quick pulse, rise of temperature, and copious secretion of milk; and I find that there was a difference of three degrees of temperature each morning and evening. On the 27th of January her temperature in the evening was 104.4° , and the next morning it was only 100° . The evening afterwards it again rose to 103° . Yet that woman was discharged well in eight or nine days. She never had the slightest abdominal complication, and no physician would have had the slightest anxiety about her, were it not for the marked risings and fallings of temperature. But for these it would have been said to be a case of milk fever. Another card relates to a woman who sustained considerable laceration of the perinæum, but who was discharged well in eight or ten days. In her case the temperature rose and fell from 101° to 104° ,

although she had not what is ordinarily called septicæmic fever. Another card is that of a fatal case in which the temperature only varied one degree between morning and evening. According to my experience, a characteristic of all puerperal fevers is that they involve extreme variations of temperature—in fact, I believe that every puerperal woman is more or less in what may be termed a septic condition.

The PRESIDENT.—As this is the last meeting of the session, I must ask your indulgence while I say a few words on the subject with which I dealt at the opening meeting, and which the discussion on Dr. Johnston's valuable paper upon "Puerperal Remittent or Septicæmic Fever," makes me additionally anxious should receive the attention that its importance deserves. I have maintained that where disease or injury is inflicted on the living body, its organic life is assailed, and its vital susceptibility recognises, resents, and resists the assailant. According to my belief, disease is not the consequence of organic changes, but these changes themselves result from a primary injurious impression made upon the life which, in each individual, is an indivisible unit, the whole of which is present in every part of the organism. From the primary injurious impression thus made upon the life-unit result, secondarily, the various changes in the organic solids and fluids of the body which take place in diseases. According to this view it is as erroneous to attribute one disease, say, to shocks received by the nervous system, as to attribute another to blood-poisoning, the effects upon the nervous system and upon the blood being in each case secondary, the shock being primarily sustained by the life-unit, and resulting in the changes whether in the nerves or blood—the nerves and blood must both be alive—dead nerves do not receive impressions any more than dead blood circulates. Life is the great antiseptic which prevents or resists death; when it can resist no longer it departs. The integral changes which take place in the blood in disease are not of the nature of fermentation or putrefaction. Such changes are, as I contend, vital. They never take place except in the living tissues, while fermentation and putrefaction can only arise in the dead. Every disease to which flesh is heir results from noxious or morbid influences, either communicated from without or generated within the organism; and it may be quite proper to consider those influences as poisons; but, if so, they ought, as I believe, to be considered as life-poisons, and their action upon the constituents of the organism as altogether secondary.

DR. MACAN.—My first observation is as to its name—viz., "puerperal remittent fever, or septicæmia." Is all remittent fever septicæmic, or is septicæmic fever always remittent? Is all remittent fever in the puerperal state dependent on septicæmic poisoning? It should be remembered that different things produce fever in the puerperal state. Septicæmia is undoubtedly one of them; but we have other factors as well,

some of which, up to the present, are entirely unknown. What is ordinarily called surgical fever is now well recognised as one of the causes of well-marked remittent fever in the puerperal state. The next thing to which I would direct attention is what is called cellulitis. Let our theories of it be what they are, they are dependent on the trauma of labour. Of all puerperal conditions none are so typically remittent and difficult to deal with as cellulitis. It may go on for a fortnight or three weeks, and the temperature of the woman may go up three degrees every morning, and fall the same amount at night, and all that time her tongue may be clean, and she may have a good appetite, and be otherwise in perfect health. That this explanation, to a certain degree, answers Dr. Johnston's paper is evident. The first case he gives is one of cellulitis with pelvic abscess. In three other cases there was tenderness of abdomen, and the other cases are cases in which Dr. Johnston thinks auto-infection is the explanation. With regard to septicæmia, what is the evidence in the large majority of cases that there is septicæmia? There are no secondary abscesses. The want of local symptoms is the only reason why they are put down as septicæmia. The trauma of labour is the first thing that we recognise as causing puerperal fever. The great distinction between traumatic and septicæmic effects is that the latter come on much more rapidly than the former. A woman who is infected during labour with septic poison shows immediate symptoms of being infected, and is never more than two days without manifesting them. On the other hand, automatic infection assumes the possibility of the decomposing discharge of a fresh wound producing that infection. It is only after two or three days that the discharges become decomposed and the wounds in the vagina are then granulating, and will not absorb septic matter. There is no way in which such infection can take place after the slits in the vagina have begun to granulate. The conditions necessary for auto-infection are—first, a fresh wound; and, secondly, decomposing vaginal discharge. In some of the cases mentioned in the paper, there were decomposing discharges, but the removal of them did not take down the temperature, and Dr. Johnston did not look on those cases as serious. One woman, with a temperature of 102°, was walking about for two hours in the day. Dr. Goodall, of Philadelphia, recommends that cases of auto-infection should be made to get up, because, while they are in a lying posture, the discharges from the uterus are retained and absorbed; but if the patients maintain an upright position, the discharges flow down by the effect of gravity, and are thus got rid of. I would say, then, that the three causes of puerperal fever are—first, the trauma of labour; secondly, that unknown affection occurring in some instances, and called milk fever; and, thirdly, septicæmia. Fever arising from the trauma of labour does not occur until the third or fourth day; whereas the fever from septicæmia arises within twenty-four hours. With

respect to remittance, each fresh cause of disease, or decomposing thrombus thrown into the system, causes a fresh rise of temperature. Each new cause of cellulitis causes a bursting out of fever. In all the books cellulitis is given as one of the causes of the highest temperatures. Schroeder mentions an instance of a woman so affected, whose temperature rose to 108° , and who yet recovered; and in a great many cases the temperature is over 106° . Therefore, I think high temperature is not much evidence of septicæmic infection.

DR. MORE MADDEN.—The question before the Society is one of great practical as well as theoretical importance. The question is, if there be such a disease as puerperal remittent fever. We have all seen puerperal fever assuming a remittent type. Whether this arises from vitiation of the blood, or from auto-infection, I do not know. What is meant by auto-infection I do not exactly understand. If a woman be capable of poisoning herself, she must also be capable of poisoning her child. We generally find that women suffering from puerperal fever are capable of secreting milk for some days; and I have never seen a child poisoned by this fearful septicæmic poison through the blood. However, that is one of the mysteries which have to be explained by the author of the paper. At certain times you find that all puerperal women are liable to fever, while at other times they are not. But that women carry in themselves a subtle poison which they generate when lying-in, I cannot believe for a moment.

DR. HENRY KENNEDY.—The cases so well given by Dr. Johnston were all, I believe, of the nature of puerperal fever; nor does the character of intermittence in the symptoms alter this view. All types of fevers present this state in turn, and much more markedly at some periods than others. As to puerperal fever being often produced by causes from within, I have no doubt of it, and quite agree with Dr. Atthill on this point; and as bearing on it, I may mention that when Dr. Johnston was Master of the Rotunda Hospital I saw cases where the woman was sick on admission, and before she was confined. These cases were scarcely delivered before bad symptoms showed themselves, and all, I believe, ran a rapid and fatal course. But this view of the subject does not take away from the additional risk which is run when there happens to be a rupture of the perinæum or other injury. Pus must then form more or less, and the chances of absorption be increased; and should the pus be of an unhealthy kind, the danger is by so much the greater. We know, as a fact, that a small quantity of unhealthy pus, introduced into the circulation of a healthy animal, gives rise to all the phenomena of fever. If the dose be large, the animal will die; but if not sufficient to kill it, it will slowly recover, and it is well worth noting that it is by an attack of diarrhoea this occurs. Dr. Madden spoke as if there was no risk to the child in cases of puerperal fever, whether fatal

or not. I cannot accept this, for in my own experience an unusual number have died, generally from erysipelas.

DR. GRIMSHAW.—I wish first to refer to the cases which Dr. Kennedy refers to as having been admitted to the Rotunda Hospital with fever. At that time we all know that enteric fever was very prevalent. I was called on to attend three or four cases of women after confinement, all of whom, I believe, were suffering from enteric fever. In two of them it certainly was so. In one case I was able to trace the disease as having been contracted in a court in King-street, where she was living, having come to town with the intention of going to the Coombe Hospital to be confined. She showed no serious symptoms of fever until after her confinement, when symptoms of puerperal fever were set up, with morning and evening variations of temperature. She died, and a *post mortem* examination disclosed the characteristic lesions of enteric fever. That case conveys the very important lesson that there may be a considerable number of cases apparently of puerperal fever, but which are not really of that nature. Now, I do not mean to say that all of them, or the greater proportion of them, are so; but it certainly is a remarkable fact that amongst the cases which I was called upon to see at the Coombe, some were scarlatina, some were this very enteric fever, and some turned out to be nothing at all. Four of them were sufficiently well marked cases of enteric fever to be recognisable, and in one the *post mortem* examination, as I have said, confirmed that diagnosis. In that particular case the appearances after death bore a remarkable relation and resemblance to cases of enteric which are very rapidly fatal before any distinct ulceration of the bowels has time to take place. It so happened that I met with this case in the Coombe Hospital at a time when Dr. J. W. Moore and I had met with cases of very rapid enteric fever occurring—one in the Meath and the other in Cork-street Hospital. Great flakes of lymph were found in the peritoneum, and various other symptoms which have been found in connexion with diseases of this type; and the two cases which Dr. J. W. Moore and I had, presented symptoms exactly the same as in the cases which came from the Coombe Hospital. With regard to septic infection or septicæmia, I cannot see that there is any difficulty in imagining that a woman may derive septic infection either from the outside, or may generate it within her own uterus. A very large number of experiments have been tried on animals with regard to septic infection, and its nature—although not fully settled yet—is to a great extent known. If you take putrid blood and inject a portion of it into the circulation of an animal, certain symptoms are set up which are known as those of septic infection. These symptoms are followed by fever of a remittent type, such as that which I understand Dr. Johnston to have described, and which is now known to be characteristic of, and always accompanying, septic infection. These cases might be compared

with the cases of women becoming infected, owing to carelessness or dirt, in a lying-in institution. There are also cases in which persons have suffered wounds or injuries, and after some days septic infection has been set up, owing to the decomposition of materials which have lain in the wound. In other cases the infection has come from outside the wound.

DR. SINCLAIR.—Two or three expressions fell from Dr. Kidd as to vaccination, upon which I wish to make a few observations. That vaccine fluid is filled with germ growths, I take to be pure hypothesis. I cannot see how Bryce's test proves that we have these growths in the vaccine lymph. That, I think, is also hypothetical. Another statement of Dr. Kidd was that the more distant the date of the first vaccination, the more perfect would be the second. I deny that altogether. In my vast experience of vaccination I have found that persons who have been well vaccinated in infancy have shown no trace of the vesicle at all. In such cases, instead of a vesicle only, a little pimple is thrown out, which dies away, in most cases, in two or three days. In proportion to the imperfection of the first vaccination does it come nearer to the true vesicle. In the cases marked in the registry "*Cicatrix—doubtful*," we find them coming nearer to the natural vesicle in infancy. In some cases we have no trace of the original vaccination, and yet the effect of the revaccination comes near the primary effect; in others a vesicle comes on very rapidly after revaccination, but decays very rapidly, and often ends in diffuse inflammation without a vesicle at all. In all cases where there has been a perfect vaccination at first we find the second vesicle abortive. I do not see in the least how Bryce's test proves the existence of those animals or vegetables, or whatever they are called. Bryce's test is this:—Supposing we have a case that has been vaccinated, and in which the vesicle is doubtful, we either take lymph from that doubtful vesicle and insert it in another arm, or we take proper lymph from the arm of another infant and insert it in the doubtful arm. If the original vaccination was very good, the last vaccination will overtake the other, and from the time it has done so both go on *pari passu* to a crust.

SURGEON-MAJOR JOHNSTON (in reply).—So many points have been discussed that I cannot notice more than one or two of them. I distinguished the cases I brought forward, so as to try and limit the discussion as much as possible. I named one class—cases of "*auto-infection*" in which, as has been well shown by Sanderson in his recent lectures, the disease arises from a change in the fluids, to which all parturient women are subject. When I first paid attention to this subject I had in my mind the name "*puerperal remittent*" fever, which, it has been suggested, I should have kept. I first had that title for my paper; but the more I looked into the cases, the more I became impressed with the conviction that they were all septicæmic. I am quite sure that the cases Dr. Atthill mentions as having occurred in the Rotunda Hospital were

not cases of milk fever, but cases of septicæmia. This subject has been more studied in Germany and France than it has been here. I hold in my hand a book by D'Espègne, published in 1873, which is very fully illustrated. German authors have also paid great attention to the subject, and many of them at least ignore the idea of milk fever occurring in the puerperal state. They look on that doctrine as a heritage from ancient popular delusions. The cases of Dr. M'Clintock are, I think, the same as the cases in my paper. With respect to Dr. Macan's suggestion that the patients should be made to get up out of bed, that practice was very much enforced towards the middle of the last century, it being thought that the discharges passing over the injured surfaces of the vagina did mischief—and I believe there is a great deal of truth in that. With respect to one of the cases that I brought forward, no one would have noticed anything wrong about the woman. It was the case which Dr. M'Clintock mentioned as sitting up. Cases of that sort are the very ones that, if not looked after, will sicken the whole hospital, although probably some of them in themselves are not worthy of treatment or observation. But it will have been the observation of many who have had hospitals under their charge that a gradual sickening process goes on, which is, no doubt, due to the septicæmia that passes through the patients. Dr. Macan thinks there is no proof of their being cases of septicæmia. I think the proofs are day by day detailed in every case that I have given. We have the rigors, the fever, the pyrexia, the remittent phenomenon which is an invariable mark of septicæmic poisoning—sometimes the local pain, sometimes the evidence of cellulitis, and sometimes the perimetritis and the diarrhœa. The cellulitis is, in my mind, an evidence of septicæmia—the result of septicæmic absorption. I have pointed out in my paper that the rigors of septicæmia are to be looked for about the third, fourth, or fifth day. Dr. M'Clintock thinks that any injuries would have granulated by that time. That, I think, is very doubtful. All the cases that I have brought forward recovered, and consequently the treatment that I adopted with them may be considered as somewhat valuable. In the *Journal* of to-day you will notice that another case is published of recovery from the use of Warburg's tincture. From the views expressed by Dr. Grimshaw, if he had not assured me that he had not read my paper, I should have thought that he was quoting from it. Perhaps we derived some of our information from similar sources. As to the uterine douche mentioned by Dr. Kidd, it was very freely used during the middle of the last century, and was strongly recommended for vaginal and uterine decomposing clots. I am one of those who are now gradually believing that puerperal fever may possibly never recur in an aggravated form in any of our institutions. At the same time, I am perfectly well aware that there are different types of puerperal fever which may be met with in practice, arising from sources independent of those to which I have alluded.

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

SESSION 1877-78.

President—G. F. WALES, M.D.; F.R.C.S., Ed.

Hon. Secretary—WILLIAM WHITLA, M.D.

Tuesday, March 12, 1878.

The President, DR. G. F. WALES, in the chair.

Case of Diseased Knee-Joint requiring Amputation. By JOHN FAGAN,
F.R.C.S.I., L.K.Q.C.P.I.

MR FAGAN showed a specimen of diseased knee-joint which he removed a few days before by amputation at the lower growth of the femur.

The end of the femur was enormously enlarged, and in the inner condyle a large cavity, containing a sequestrum, existed; this also contained a quantity of pus, and communicated with the joint; the rest of the cancellated portion was expanded, soft, and friable, and infiltrated with degenerated inflammatory products. The head of the tibia was in a somewhat similar condition, and contained a small circumscribed abscess. The articular cartilages and semilunar fibro-cartilages were nearly all destroyed, and there were attempts at bony ankylosis here and there. Synovial membrane partly destroyed; what remained thickened and pulpy; tissues around joint infiltrated with fatty and gelatinous matter.

The specimen of diseased knee-joint I have just now shown you, I removed by the mixed method of amputation at the junction of middle and lower thirds of thigh, on the 13th of the present month. The history I consider both interesting and instructive. I saw the lad at my own house, just two years ago, at a comparatively early stage of the disease, and the following are the notes I had then taken of the case:—

F. P., aged nine years, was brought to my house on the 14th April, 1876, suffering from an affection of the knee-joint. He had the appearance of an average healthy lad. The limb was encased in a gutta-percha splint, the foot supported by a band passed round the neck, and he was able to get about pretty nimbly on crutches. There was no contraction, nor did he suffer any pain on pressure, although I used a considerable amount; however, the joint, as a whole, was very much enlarged. The condyles of the femur expanded, and there was a good deal of effusion into the joint and the pouch under the quadriceps muscle. The history I got from the mother was that she looked on him as a particularly healthy child

up to last September (seven months before I saw him), when he began to complain of pain in the knee, which prevented him sleeping. As there was no alteration in the shape of the knee and no history of traumatism, it was looked on as rheumatic.

In November it began to swell. He was seen by a medical man, who recommended the joint to be strapped and a splint applied. Under this treatment it improved somewhat, when he began again to run about. After a little his condition got worse, when he was confined to his bed, and a starch bandage applied; after some time this was removed, and the joint painted over with iodine. The health began to give way about this time, and the joint had increased to the size it presented when I first saw him.

About February he was seen by another medical man, who put the limb up in the gutta-percha splint, and recommended him to take plenty of open air exercise on crutches. Under this treatment his general health began to improve, and he presented the appearance already described when I first saw him.

As it was solely with the view of getting my opinion on the case that the mother brought the boy to me, I gave it to her very unreservedly. [I may mention here that the opinion I formed as to the condition of the joint was that the disease began in some of the inter-articular tissues, probably from a strain of the crucial ligament; that it had expended itself most on these tissues, which became very much swollen and infiltrated; that the bones had become secondarily involved, but not to any great degree; and that there was a good deal of inflammatory infiltration into the tissues around the joint.]

My opinion, as given to the mother, was—that although I did not look on the joint as hopelessly diseased, my experience led me to think that unless it speedily showed symptoms of improvement it would soon become so; that there were some encouraging features about the case, such as absence of pain when pressure was made over the ends of bones, his ability to take exercise while the joint was kept at complete rest; that the principles of treatment as laid down by her last medical attendant should be carefully adhered to; that if after this line of treatment had been carried out for some time, and was followed by no improvement, and especially if there was a retrograde tendency, I would unhesitatingly recommend excision of the joint before the disease had extended so far that this operation could not be entertained. As she was going to some friends in Dublin at the time, I recommended her to have the opinion of some eminent surgeon there.

I heard no more of the case till about three weeks ago, when the mother called on me again to say that a local practitioner recommended her to have her son's leg amputated, as the only means of saving his life, and that she wanted my opinion. She told me that after she last seen

me (just two years ago) she took her boy to Dublin, and, on the advice of a surgeon there, continued the expectant method of treatment as already described. Matters gradually got worse, the characteristic changes both in the joint and the constitution slowly but surely taking place; and, after two years of suffering, when I again saw him it was a question whether amputation could be entertained. After examining the condition of the kidneys, I recommended operation, and two days afterwards I removed the limb in the manner described. Since the operation his progress towards recovery has been uninterrupted.

Case of Sub-Periosteal Resection of the whole of the Shaft of the Ulna. By
MR. FAGAN.

ANNIE REID, aged three years, was admitted under my care on the 17th November, to the Children's Hospital. She was affected as follows:—Forearm much swollen—this was most marked at the ulnar border—and ceased abruptly about a quarter of an inch from the head of the ulna, and one inch from the top of the olecranon; the hand was puffy; there was great pain along the region of the ulna. The elbow and wrist-joints were quite free. There was a sinus discharging matter about one inch below the olecranon, and through this a probe passed down along the ulna as far as its head; the periosteum was separated from it in its whole extent.

The mother stated that about ten days previous to admission she noticed that the arm was very painful when pulled out of the sleeve of the dress. She rubbed it with soap liniment; it became worse. She took her to a medical man who ordered a poultice. After some days an abscess burst over the olecranon, giving relief to the acute pains, and reducing the swelling. After some days I made a free opening over the lower end of the ulna, so as to favour the discharge of matter and prevent burrowing about the joint. Gradually the swelling and acute inflammatory symptoms subsided, and on the 4th January, six weeks after admission, I removed the necrosed shaft, through an incision about an inch and a half long at the seat of the upper opening. The shaft was apparently quite loose, but, notwithstanding I used a considerable amount of force with a pair of strong sequester forceps, I was not able to remove it until I passed an elevator through both the upper and lower openings, and detached several bits of periosteum that remained adherent. I packed the cavity with some carbolised tow, and placed the limb on an angular splint. She made a good recovery.

It is now a year and a half since I removed the bone; the ulna is quite restored; there is no deformity; and the only difference observed between the two arms is the presence of two small scars on the one that was affected.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

President—EDWARD HAMILTON, M.D.

Secretary—E. H. BENNETT, M.D.

Horse-shoe Kidney.—DR. FINNY said: At the first meeting of the Society it was my privilege to submit an example of congenital displacement of the right kidney. Now I have to show another anomalous condition of the kidneys, consisting of the union or fusion of the two lower portions of the kidneys, forming what is called horse-shoe kidney. The example represents these features remarkably well. The specimen was taken from the body of a male subject in the adjoining dissecting room; and the situation of the organ was as follows:—The upper ends of the kidneys are both a little lower than they ought to be, but they were covered by the supra-renal bodies. The lower portions of the kidneys converged, and met across the abdominal aorta, the lower end of the inner being half an inch above its bifurcation. The inferior mesenteric artery crossed the junction of the kidneys. The fold of the peritoneum was deflected from the left side of the mesentery and passed near the psoas magnus muscle over the kidneys. Under it, or between it and the kidneys, lay the left spermatic vessels. The arterial supply of the kidneys was derived both from the normal sources and from additional sources. The upper portions of the united kidneys received the two renal arteries respectively, while the lower portion of them received two other vessels, one of which was derived from the abdominal aorta, three-quarters or half an inch below the inferior mesenteric, while the other, which passed to the under-surface of the union of the two kidneys, was derived from the left common iliac artery. As is common in such cases, the ureters pass in front of the kidneys. The other remarkable points are—that the hilum of each kidney seems extremely large, especially in the right half of the union, and that the pelvis of the left kidney is fully three and a half inches long. The venous distribution seems to be quite normal, the left vein, though at a lower level than usual, crossing the abdominal aorta and joining the vena cava. The left spermatic vein passes over the kidneys and enters the left renal vein.—*March 9, 1878.*

Carcinoma of the Pylorus.—DR. WALTER SMITH said: On taking up clinical duty a fortnight ago, I found in one of the wards a man aged about fifty-seven, but so haggard and cachetic looking that he seemed to

be seventy. He had drunk a great deal, and was in a feeble state of health when I saw him. His main symptoms were increasing debility and incessant vomiting. Each day he used to eject quarts of thin brown, or greenish yellow fluid, and nothing stayed on his stomach. Notwithstanding this his tongue remained clean and moist throughout. He gradually sank, and died on the 21st of March. His abdomen was moderately distended, and during the earlier period of his stay in hospital a considerable amount of ascitic fluid was determined, but within the last week fluctuation became less evident. Several firm rounded tumours, one occupying the central part of the abdomen, were easily perceptible, and a number of smaller nodules could be felt when the hand was suddenly depressed through the ascitic fluid. It was plain from these symptoms that he was suffering from some form of malignant disease. I examined his urine a few days before his death. It was high coloured, and when boiled with hydrochloric acid became dark brown, and after the addition of a few drops of a saturated solution of calcium chloride, and agitation with chloroform, yielded a reddish brown precipitate. The abundant chocolate-coloured sediment was an indication of the presence of excess of indican, this being a feature especially observed in connexion with malignant abdominal disease. On making a *post mortem* examination of the abdomen a large amount of subcutaneous fat was cut through, and about a pint of bloody fluid escaped. There was great difficulty in separating the abdominal wall from the viscera, the parietes being universally glued to the solid viscera by tough fleecy adhesions. The peritoneum was greatly thickened, of an opaque white colour, and in some places of almost cartilaginous hardness, and it was studded over with white nodules of various sizes. The intestines were of a dark colour, and were universally matted together by this tough cottony adhesive exudation. In the centre of the abdomen a large triangular solid mass overlay the intestines, and obviously corresponded in situation with the omentum. It is very firm to the touch, and cut with a creaky section, displaying two grayish white hard layers with a yellow intermediate portion. The disease had evidently crept round the edges of the omentum, wrapping up the central omental fat within itself. The peritoneum was also speckled with numerous hæmorrhagic points. The other viscera were healthy. The liver was shrunken and ovoid in form, but no anomaly could be discovered in its structure. The kidneys and spleen were normal; and the disease, in short, appeared to be limited to the peritoneum and its glands, the pylorus, and the stomach. On laying open the stomach the mucous membrane was found to be greatly injected, and of a deep purple colour, and the pylorus was a hard cartilaginous mass, with a ragged raw surface at the entrance to the duodenum. A microscopic examination of a fresh portion of the specimen showed well-marked characters of scirrhus carcinoma. I believe that

the disease began in the pylorus, and that the peritoneal cancer was secondary. The adhesions are the result of secondary peritonitis; but the symptoms varied very little during the time he was in hospital. His symptoms dated back eight months, and the tumours did not increase very rapidly during the last fortnight. The peritonitis, of course, was more recent than the original development of cancer; at the same time, from the density of the adhesions, I think it is evident that the peritonitis itself was of some standing.—*March 30, 1878.*

Muscular Anomalies.—DR. KENDAL FRANKS said: The specimen which I now lay before the members of this Society is one of considerable myological interest. The subject from which I obtained the specimen was a male of good muscular development, which was brought into the dissecting-room of the Royal College of Surgeons in February last. My attention was called to it by the curious malformation of the left hand which you see before you. The index and middle fingers consist of only two phalanges each, and are webbed together to about half an inch from their ends. The ring finger has the usual three phalanges, but it is webbed to the middle finger in the same manner as is the index finger. The nails on all the fingers are well developed. A very little dissection shows that the second digital artery runs between the index and middle fingers and does not bifurcate till it reaches a point half an inch from the last phalangeal articulation. At this point it sends off the anterior perforating artery. This condition of the hand induced me to make a careful dissection of the upper extremity of that side, and I was rewarded by the discovery of three remarkable anomalous conditions, which I desire now to communicate. *In the first place*, when the pectoralis major was carefully raised, I found that the lesser pectoral was completely absent. There was no trace of it, though the greater pectoral was normal. In referring to the "Catalogue of Muscular Anomalies," published by Dr. Macalister (Transactions of the Royal Irish Academy, Vol. XXV., Part 1, 1872), I find that Poland ("Guy's Hospital Reports") and Barkow have each described absence of the lesser pectoral in cases of *deficient great pectoral*; but I am unaware that with a normal condition of the great pectoral, the total absence of the lesser pectoral has previously been published. *The second* variation from the usual condition was found in the serratus magnus. This muscle by its unusual size evidently attempted to take the place of the deficient pectoralis minor. It arose by ten digitations—the lowest from the ninth rib. The lower digitations coalescing together formed a very strong muscular belly which had a distinct insertion into the inferior angle of the scapula. But the most remarkable condition in connexion with this muscle was the manner in which it extended over the front of the chest. The middle slips came most forward, the sixth and seventh digitations taking a muscular origin from

the fifth and sixth ribs, close to the cartilages, and arising by a strong aponeurosis not only from the cartilages, but from the sternum itself. Dr. Macalister refers to an instance, mentioned by Theile, of absence of the omohyoid, in which the upper fibres extended as far forwards on the superior costa as the notch, but he makes no allusion in his catalogue to such a condition as I have described. The third anomaly existed in the superficial flexor of the fingers. As you can see here, the muscle divides into five tendons, two of which go to the index finger. The fifth tendon to the little finger is such a delicate prolongation as hardly to deserve the name of a tendon. The tendons going to the index finger lie one in front of the other. The anterior divides into two, and the divisions develop fleshy bellies which become respectively the first and second lumbricales. The posterior tendon also develops a muscular belly, which derives a few additional fibres from the anterior tendon, and passing towards the base of the first phalanx, it splits to allow the tendon of the flexor profundus to pass through. Each division of it is then inserted into the base of the first phalanx, the flexor perforans being inserted into the base of the second phalanx. These anomalies were all unilateral. The right side was normal in all these particulars.—*March 30, 1878.*

Cirrhosis of the Lung, Endarteritis Deformans.—DR. FINNY said: These specimens represent some points of interest. They were taken from the body of a man sixty years of age, who had been in the army, and who had been discharged on full pay after 20 years' service. He suffered from an abscess in the leg and groin, commencing, as I found afterwards, in the ileum. He was treated for bronchitis and cough by Dr. Fitzgibbon, who discovered a systolic murmur at the base of the heart, extending from the lower border of the second rib over a greater area than the aortic murmur. There was percussion dulness over the right side of the thorax. The man was in a weak state, so that much examination could not be made. It was, however, diagnosed that he suffered from an atheromatous condition of the aorta and its branches in the chest. He died on Tuesday last. On opening the thorax a remarkable change was found in the right pleura. The right lung was smaller than the normal size; and the left lung was emphysematous, and enveloped the heart to a considerable extent. The right lung was compressed backwards into a hard mass, and the apex of it is of a peculiar putty-like character, with dilated bronchial tubes. The lung presents an example of the fibroid change described by Sir D. Corrigan under the name of cirrhosis. The history of the case is deficient, but I conceive that an old pleuro-pneumonia must have been the cause of the disease. On attempting to take the lung out I found it impossible to do so without separating the whole pleural surface from the ribs, and tearing away part of the intercostal muscles with the pleura. At first sight it seemed as though there had been fracture

through several of the ribs, but closer examination showed this to be due to a cartilaginous-like plate into which the pleura was converted from the diaphragm almost to the first rib. It is fully half an inch thick in some part and cuts semi-osseously. The other points of interest are the heart and aorta. There is an hypertrophied heart; the aorta lies more to the right side and more forward than is usual; it is also slightly elongated from its origin to the exit of the first vessels. The vessel, on being laid open, presents an excellent example of the disease called *endarteritis deformans*, by the Germans, but which is better known under the name of *atheroma*. The vessel shows several varieties of the disease. When the specimen was recent this elevated mass was of a deep purple colour, velvety to the feel, and the lining membrane of the vessel was traced continuously over it without any separation. This was the first stage of the disease. Two further stages are also shown very clearly. Some ulcerative process having gone on, the velvety patch has become fatty, and the fatty matter by degrees filled the cells so full, and pressed on the lining membrane of the vessel so strongly, that it finally burst its way through the artery. The third stage, or that of calcification, common in such cases, is seen also. The knife strikes against the sharp plates of bone, while to the finger the whole vessel is rough and scabrous. The external appearances correspond with the dilated condition of the vessel. The valves of the aorta are perfectly competent to hold water, but the bony plates have extended from the aorta into them. The finger passed from the ventricle into the aorta is met by three bony projections which must have been the obstacles to the flow which constituted the systolic murmur that was heard, the extension upwards of the murmur being due to the condition of the vessel and the contiguous pleura. The valves being diseased only on the arterial surface it is clear that the disease did not begin in the heart or endocardium, but that it began in the artery and extended downwards to the arterial valves. A slight change is seen in the mitral valves like a prolongation downwards from the arterial deposits, the endocardium being perfectly glistening and smooth. The left ventricle, although somewhat hypertrophied, is dilated, and has undergone the change of fatty degeneration. You see the pale yellow, greasy appearance of the wall of the heart. It is so soft that it breaks down under the nail, and several white specks of fatty matter are seen in the *musculi papillares*. The specimen is an example of fatty heart occurring as a sequence to *endarteritis deformans*. I think that this is likely to be the case, because, on looking to the coronary vessels, the *atheroma* extends down both to some distance, portions of them presenting hard white nodules, other parts being completely converted into rigid osseous tubes. I think this fatty disease of the left ventricle is secondary to the change in the arteries which supply it. This view of the case as one of fatty disease occurring in an otherwise strong heart,

is, I believe, confirmed by another specimen which I would take the liberty of showing in connexion with it. It was taken from the heart and aorta of a woman aged forty-four, who suffered from extreme general debility with dropsy of the legs when she came to the hospital, and who died in a short time of bronchitis. On a *post mortem* examination we found extreme fatty degeneration of the left ventricle, out of proportion to her age, and other conditions. The coronary artery is surrounded at the orifice by some of the calcareous or osseous changes which take place in the third stage of atheroma. The coronary artery, which is tortuous the whole way down to its final termination, is one mass of the same rigid hard material. Metal strikes sharply against it. In this case there was no valvular disease and but slight disease of the aorta.

The two cases show that a diseased condition of the aorta and coronary arteries leads to a very serious secondary result. As to the causation of the disease I know there will be different opinions. The case of the first patient conforms to the view that increased blood pressure has a great deal to do with producing the disease. The man was a soldier, and exposed to the toils and vicissitudes of a military life, and as such was more likely to have had pressure upon his vessels than other persons not exposed to the same vicissitudes. I believe that this endarteritis deformans is more commonly found in persons who are athletes, or whose trades and occupations require a greater amount of muscular force than others. In the two cases I have exhibited the heart was fatty, the first having been formerly hypertrophied, the latter not being increased in size. The cause of the fatty change in both I consider to be the imperfect blood supply to the muscles of the heart owing to the rigid and osseous condition of the coronary vessels. An important lesson to be impressed is that, no matter how hypertrophic a ventricle may be, its compensatory powers will quickly fail when once the channels through which its nutrition is conveyed become affected by atheroma, and that, in practice, the prognosis of a case of cardiac affection should be mainly influenced by the condition of the muscle of the heart rather than by valvular incompetence.—*March 30, 1878.*

Fracture of the Femur, attended with peculiar Obliquity and Displacement.—DR. E. W. COLLINS said: The specimen which I exhibit I recently removed by amputation from a sergeant in the 17th Regiment, aged thirty-six years. Having been on furlough in a distant part of the country, he was passing through Dublin to rejoin his regiment at Shorncliffe. While waiting for the steamer at the North Wall, on the premises of the London and North-Western Railway Company, he was struck by a waggon which was being shunted down an incline, and of the rapid approach of which he was unaware, owing to deafness and the darkness

of the night. It dashed him against a wall; he was taken up senseless, and bleeding profusely from the thigh. When I saw him shortly afterwards, at 10 p.m., in Jervis-street Hospital, he was in a condition of extreme collapse, owing to the shock and loss of blood he had sustained. Examination of the thigh revealed a most serious compound fracture about the junction of the middle with the lower third. Owing to the obliquity of the line of fracture, the two fragments had been very widely separated. The lower fragment had been drawn by the muscles upwards, forwards, and outwards, so that some inches lower down the sharp end of the upper fragment projected sharply under the skin at the inner side of the knee. The skin had been perforated in two places, at the front and inner side; and blood had been extensively extravasated under the skin throughout the limb, from the knee upwards to within a short distance of the hip. On pressure just above the knee, a feeling of succussion was communicated to the hand, proving free admixture of air and blood. About the middle of the thigh the skin was greatly contused. The mangled condition of the limb—owing to the laceration of the vessels and soft parts, the extensive blood extravasation, and the free admixture of air with the blood—was such that it appeared to me the best chance of life would be afforded by immediate amputation, even though it should be performed at a dangerously high level. Two hours later reaction was so far established that blood again began to pour from the apertures to such an extent as to need the control of Esmarch's tubing before the man could be removed with safety from his bed to the operation theatre. With the assistance of my colleague, Dr. Martin, I amputated the thigh by the circular method through the upper third immediately below the trochanter. Some of the clinical details are of such interest that I may be allowed briefly to refer to them. The condition of collapse was so extreme that I administered ether hypodermically in half-drachm doses on three different occasions within a comparatively short space of time—at my first visit, immediately before the operation, and immediately after it—and I believe that the recovery of the man from this condition was largely due to its repeated use. Nussbaum's method of mixed narcosis suggested itself as a useful mode of procedure for so maintaining the anæsthetic effect of the ether inhaled that the services of the dispenser might be somewhat at my disposal. Accordingly, when the man was on the operation table, before ether inhalation was commenced, I injected $\frac{1}{4}$ gr. of morphia subcutaneously. The method acted admirably, comparatively little ether being required. Such narcosis was induced that the man did not become perfectly conscious till two hours after the operation, and I think that it in no small degree diminished the shock necessarily consequent on an operation performed so near the hip. Esmarch's elastic tubing was used as a tourniquet, but owing to the rapid diminution of the thigh below the hip, I was prepared for its

slipping as soon as the division of the skin had been effected. Dr. Martin immediately compressed the artery in the groin, while I completed the division of the muscles and ligatured the arteries with carbolised catgut before proceeding to the division of the bone. The subsequent history of the case strikingly illustrates the value of this method of arterial deligation. On two occasions—a few hours after the operation and two nights later—during sleep the man unconsciously tore off all the dressings from the wound. This was attended with no ill consequence, owing to the manner in which the vessels had been secured. It is difficult to imagine that ligatures hanging out of the angles of the wound would have escaped the same fate as the dressings; and there can be little doubt that if the ligatures had been rudely torn away from such large arteries at so early a period after their application, serious, if not fatal, hæmorrhage would have ensued. When the operation was nearly completed the man exhibited a profound condition of collapse. The previous pallor of his countenance was succeeded by a peculiar waxy pallor, like that of a corpse, which overspread the upper part of his face. His pulse could not be felt at the wrist, and he was unable to swallow. His condition was so grave that, in order to restore animation, I gave him ether subcutaneously for the third time, and, without waiting to dress the stump, had him conveyed to a warm bed, hot jars placed at his foot and sinapisms applied. The following morning, to my surprise, I found him quite rallied from the collapse, free from pain, and in excellent spirits. His recovery since has been uninterrupted. I made a careful examination of the amputated limb, in order to ascertain the source of the copious hæmorrhage which had endangered the man's life after the accident. My own impression at the time was that it proceeded from the popliteal vein, because there was no difficulty in determining the presence of pulsation in the posterior tibial artery at the ankle. Examination of the main vessels by injection, however, sufficiently demonstrated that neither the popliteal artery nor the vein was injured. Both were intact; but the injection escaped from so many branches of these vessels that it was impossible to determine more accurately which branch, if any, in an especial degree had suffered. As regards the specimen itself, the direction of the obliquity of the fracture is interesting. It passes from above downwards and backwards—the very reverse of what is usual in this situation. This peculiar direction was probably determined by the manner and direction in which the violence was applied to the thigh, and it explains clearly the unusual displacement of the fragments. That the specimen from this circumstance is worth the attention of the Society is evidenced by the fact that Prof. Hamilton (*Fractures and Dislocations, loc. cit.*) during his extensive experience has seen only one such case; and according to M. Nélaton (*Path. Chirurg.*, Vol. II., p. 407), out of twenty specimens of oblique fracture of the thigh in this situation, one

only of a similar character to that which I exhibit is to be found in the Dupuytren Museum in Paris. The bone is undoubtedly thicker and heavier than is natural. This is due to subperiosteal deposit, and is one of the manifestations of constitutional syphilis, from which the man has suffered during the past four years. The case is further interesting as an instance of recovery after primary amputation of the thigh in its upper third for compound fracture, which is held by Mr. Erichsen to be one of the most fatal operations in surgery.

PROFESSOR BENNETT observed, regarding the peculiar direction of the line of fracture, and its extreme rarity, that a single specimen of the same nature existed in the Trinity College Pathological Museum, which he had laid before the Society some years since (*Trans. Path. Soc. Dubl.*, Jan., 1862). The late Professor R. W. Smith, who had visited most of the museums in Europe, denied the existence of such a displacement till convinced respecting it by that specimen.—*April 6, 1878.*

Necrosis of Jaw (Lower).—MR. F. T. PORTER said: This is an example of necrosis of the lower jaw, which came under my notice on the 22nd of March. The patient was thirty years of age, but looked older. She had been wet nursing for a prolonged period, and had a most exhausted and emaciated appearance. The history of the case is not very clear, but it appears that ten years ago she suffered from a gum-boil in connexion with the right lower second bicuspid, for which she was treated at a surgical hospital. She felt comparatively well up to six weeks ago, when the right side of the lower jaw became painful and swollen. From the offensive odour and rounded appearance of the swelling, coupled with the patient's cachectic aspect, I was at first led to think that the case was one of malignant tumour. On probing, however, I detected a large loose piece of bone. Some teeth which were loose were extracted, an incision was carried along the gum, the mucous membrane reflected, and the sequestrum lifted out. Authorities on dental surgery attribute jaw necrosis to the agency of eruptive fevers, phosphorus inhalation, and syphilis. In the case under consideration (the history of which I must admit is not very clear) there was no evidence of the operation of any of these causes. I would hazard the opinion that a necrosed stump might have been the exciting cause of the disease. I am anxious to elicit opinion as to the relation of periostitis to necrosis also. An interesting feature in the case was the fact that sensation was lost on the right side of the cheek and lower gum before the removal of the sequestrum; it returned after the operation. The pressure of the sequestrum on the inferior dental nerve may explain the circumstance. [In reply to the Chairman, Mr. Porter said that the patient was now convalescent, and that the bone was attached above and to the right of the right mental foramen, extending as far back as the socket of the lower wisdom tooth

on right side. In answer to Dr. Bennett, Mr. Porter stated that there was no formation of new bone.]—April 6, 1878.

Senile Osteoporosis.—DR. BENNETT said: The specimens I now submit are illustrations of a bone disease which is still very little explored. It is *mollities* or *fragilitas ossium*, or, better, *senile osteoporosis*—whichever we are pleased to call it. During the last session, in the hot weather at the end of May or beginning of June, a subject was brought in for the purpose of operations on the dead body. It was the extremely wasted body of an old woman, and presented on the right side of the chest deformities like those of recent fractures. You can see projecting forwards in the skeleton on the table the irregularities which this side presents. On the opposite side is an ununited and recent fracture of the outer end of the clavicle. The idea that first occurred to me, in ignorance of the life-history, was that the woman had sustained some recent injury, such as a cart-wheel passing over her chest, not immediately before her death, but at some little interval. Reserving further examination for a more convenient time, I went on with the operations with which I was at the time engaged for the instruction of the class. We found nothing very remarkable in the limbs, except what usually appears in almost all old bodies. The bones sawed with extreme facility, but they were not deformed, and in the centres of the shafts were of fair strength. The bones presented, in almost all places, not yellow but red marrow. As soon as we separated the arm from the side, we discovered that on the side of the fracture of the clavicle there was a fracture also of the scapula, and that it presented a recent and incomplete union, the fracture being an ordinary fracture of infra-spinous region of the body of the bone. The skeleton, when macerated, showed that our original conclusion was wrong. The easiest way to describe the matter is to exhibit Sandifort's first, second, and third plates, representing conditions absolutely identical with what we have here. We have in these plates representations of fractures of the clavicle, scapula, and ribs, so nearly identical in appearance with the present specimen that you would almost suppose that they had been drawn from it. On going over these ribs, I counted in all fifty-five fractures in the ribs, many of which were united by callus, and, though the callus is not abundant, the appearances show that the fractures must have occurred in succession at different ages, for the unions of some of them were perfectly hard, while others were soft and friable. The condition of the pelvis repeats very exactly the conditions figured in Sandifort's plate. We have the same compressing in the direction of the oblique diameters; but still more remarkable is the correspondence in the position of the fracture through the ilium.

The radiating fracture, passing upwards from the sciatic notch, and branching in two directions, repeats the conditions represented in Sandi-

fort's plate. The sacrum is greatly incurved towards the pelvis. There is no history in Sandifort's text of the plate; he merely says that it is the skeleton of an old woman. I was fortunate enough to get the history of the case I now submit, and a good deal of importance attaches to it. Dr. Tate kindly gave me all the details he possessed. The woman had been for a great number of years in the North Dublin Union, and had been a favourite in the ward. She was considerably over ninety years of age, and had not been out of the house for eleven years, but she had been confined to bed only a few days before her death. She had neither rheumatism nor gout, and had not had any fall or injury. There was no knowledge, however, of any fracture having occurred to her. The nurse was said to have been careful of her patients, and of this old woman in particular, and never heard from her any complaint of pain, or anything else that could have been referred to a fracture. It is clear, therefore, that the senile change which occurred in her case, and which must have been progressing for some time, must have been unnoticed by anyone, and probably culminated in the fractures in the short time as she lay in bed before death, and must have been even unnoticed by herself, as it was not attended with any material suffering. In this point of view the case is of importance, because, although mistakes are not likely to be committed with reference to a person of such advanced age as she was, still a hasty diagnosis, such as I myself made on a superficial examination of the body, and even while superintending the operations upon it, might readily have suggested that she met her death by foul play. Yet in a case presenting all these fractures there was absolutely no attempt at concealment of the history, and absolutely no knowledge of any of them before her death. The case might also have readily become the subject of a trumped-up charge of maltreatment. I regret greatly that the subject was not in better condition when I first saw it, and still more that I did not make a complete examination of the bones while they were even tolerably fresh. The best authorities upon cases of this kind divide them into three classes. One is the true osteomalacia, a disease occurring as a sequel of pregnancy in young women, and which is induced, apparently, by the conditions of repeated pregnancies. Of this we have two examples already in the records of the Society. It will be in the recollection of members that the late Professor Smith presented an entire skeleton of true osteomalacia, in a young woman, as the sequel of pregnancy or some such exciting cause. In that case there was a breaking down and smashing up of the bones in every possible direction without an attempt at union. The second form of the disease, adopting Ranvier's classification, is senile osteoporosis, to which the present case is referable. The third is the fatty osteoporosis, such as occurs in the remains of a limb which has been amputated, or where a piece of bone has been put out of the line of

work, or in the case of an ununited fracture, where a simply fatty replacement of the part takes place. The senile condition which leads to this fragilitas ossium is remarkable for developing red marrow throughout the bones, with a very small amount of grease. There is very little in these specimens, which have got the least possible amount of maceration that they could get. The naked eye appearances of the two latter forms are therefore tolerably easily distinguished. On making an examination of the decalcified clavicle which, with the scapula, I preserved in spirit, there is not much to be learned, except one point, and I do not know what weight to attach to it, for this is the only specimen of the disease that I have been able to examine, and the examination that I made was imperfect. When this longitudinal section is placed under a low power of the microscope it is seen that a great number of vessels in the Haversian canals are obstructed. This obstruction is evidently not due to any *post mortem* change, because the arrangement of it is such as to point clearly to a more complete process than that. Everywhere that I made longitudinal sections I could see the obstruction in the vessels. Whether they are emboli or not I am not prepared to state. But in these specimens, prepared with picric acid, the yellow of the bone allows the course of the vessels to be seen beautifully; and all through you can see that the capillaries are more or less obstructed, not by mere coagula but by some form of embolic affection. The case, although incomplete, is worthy of being recorded with a view to inquiry as to what was the nature of the atrophy. I should have mentioned that Ranvier points out—and the cases recorded by Smith agree with his statement—that in the true osteomalacia, occurring in the young female subject, as a sequel to pregnancy, there is no attempt at union of the bones, but in the senile disease union occurs, though irregularly. I examined the callus of the scapular fracture—the only one I was in a condition to examine—and found that it fulfilled absolutely the conditions of a callus formed first of cartilage, and subsequently ossifying. It is a beautiful specimen of callus, composed of cartilage, and passing into ossification in the ordinary way.—*April 18, 1878.*

Epulis.—MR. F. T. PORTER said: This is a specimen of an epulis which I removed yesterday, and it presents a few points of interest, inasmuch as it was connected with the upper front teeth, it being needless to observe that such growths are generally associated with the back teeth. It was of fourteen years' growth, the patient being now sixty years of age. I removed it by cutting down as far as possible without taking away any of the bone, for reasons I shall presently explain. This is a rough model [produced] of the epulis after the removal of the left upper central incisor which was displaced by the growth. After the operation I found difficulty in arresting the hæmorrhage from a small artery which I could not

reach. I was enabled, however, to check the bleeding by the application of a small instrument (used by dentists) affording lateral pressure. I have no doubt that this instrument could be used with some advantage in similar operations. I now invite attention to the propriety of removing the bone in some such cases. It has been stated that epulis cannot be cured without the removal of bone, but that opinion is not universally adopted. In this case I deemed it prudent to pursue a more conservative line of treatment which I considered to be more consonant with the patient's age and weak condition. In addition, it appeared to me that the amount of force necessary to take away the bony attachment of such a large epulis might (especially in old persons), in cases in which the growth is connected with the upper front teeth, endanger the floor of the nose. I would not, however, say that the removal of bone would not eventually prove the more satisfactory course to pursue when circumstances permit.—*April 13, 1878.*

TRACHEOTOMY WITHOUT TUBES.

At the recent session of the American Medical Association, Dr. Henry A. Martin, of Boston, made a practical suggestion, in connexion with tracheotomy, worthy of notice. He regards tubes as entirely useless, and performs the operation as follows. After making the incision in the usual manner, down to and through the trachea, he introduces a central stitch in each edge of the wound through the tissues, including the trachea; this is loosely tied so as to form a loop, through which a long strip of adhesive plaster is passed, upon which very slight traction is made, the plaster being crossed at the back of the neck. Unless the traction be too strong, the loops will not cut through for two or three weeks; but he had generally been able to remove them in one week. The wound heals readily. He reported nine cases of this operation, which had been found perfectly satisfactory in the hands of all who had tried it. Attention to the after-treatment, by properly regulated temperature and moisture, was insisted upon.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, M.D., F.K.Q.C.P.

VITAL STATISTICS

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, August 10, 1878.

Towns	Population in 1871	Births Registered	Deaths Registered	DEATHS FROM ZYMOTIC DISEASES							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea	
Dublin, -	314,666	668	622	55	2	3	6	13	24	49	25·7
Belfast, -	182,082	522	326	4	—	10	1	6	9	25	23·3
Cork, -	91,965	183	131	—	1	—	—	2	1	4	18·3
Limerick, -	44,209	95	65	—	—	—	—	1	3	2	19·0
Derry, -	30,884	79	50	—	—	1	—	1	—	1	21·3
Waterford, -	30,626	65	46	—	—	—	—	—	1	1	19·8
Galway, -	19,692	23	39	7	1	—	—	—	3	—	26·0
Sligo, -	17,285	33	17	—	1	—	—	—	—	1	12·8

Remarks.

The death-rate was high for the season in Galway and Dublin. In the other towns it was moderate or low. The rate of mortality was 26·1 per 1,000 of the population annually in London, 17·2 in Edinburgh, and 24·9 in Glasgow. Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the death-rate in Dublin was 25·0 per 1,000. Within the municipal boundary it was 26·6. The increased rise of mortality in London from 22·1 and 20·4 per 1,000 in the two preceding four-week periods was solely due to the prevalence of summer diarrhoea, which caused so many as 1,582 deaths. Of these 1,207 were of children under *one* year of age. In Dublin zymotic affections caused 175 deaths—the average number in the corresponding period of the previous ten years being only 113. Small-pox was not so fatal as in the previous four weeks, but diarrhoea was five times as destructive as it had been in the former period. Of the 49 deaths ascribed to this disease, 40 were registered in the second two weeks of the period, and no fewer than 40 were of children under five years of age. The weekly deaths from diarrhoea were 2, 7, 20, and 30

respectively. Of the 24 deaths from fever, 10 were due to typhus, 9 to enteric, and 5 to continued fever of undetermined type. At the close of the period there were 125 patients suffering from small-pox in the Dublin hospitals. Whooping-cough continues very fatal. In Belfast scarlatina and diarrhoea proved destructive to life; and small-pox is still epidemic in Galway. Small-pox is diminishing in London, where it caused 62 deaths, compared with 87 in the preceding four weeks. In Dublin respiratory affections were more fatal than usual. The deaths attributed to them numbered 64, compared with an average of 55·3 in the previous ten years. They included 34 from bronchitis (average = 36·7) and 17 from pneumonia (average = 10·3).

METEOROLOGY.

*Abstract of Observations made at Dublin, Lat. 53° 20' N., Long. 6° 15' W.,
for the Month of July, 1878.*

Mean Height of Barometer,	-	-	-	30·092 inches.
Maximal Height of Barometer (on 18th at 9 a.m.),	-	-	-	30·449 „
Minimal Height of Barometer (on 24th at 9 a.m.),	-	-	-	29·737 „
Mean Dry-bulb Temperature,	-	-	-	61·7°
Mean Wet-bulb Temperature,	-	-	-	58·1°
Mean Dew-point Temperature,	-	-	-	55·0°
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·434 inch.
Mean Humidity,	-	-	-	79·0 per cent.
Highest Temperature in Shade (on 17th),	-	-	-	75·1°
Lowest Temperature in Shade (on 13th),	-	-	-	48·2°
Lowest Temperature on Grass (Radiation) (on 13th),	-	-	-	43·8°
Mean Amount of Cloud,	-	-	-	59·7 per cent.
Rainfall (on 9 days),	-	-	-	·650 inch.
General Direction of Wind,	-	-	-	W.N.W. & E.N.E.

Remarks.

This was a beautiful month, with very little rain and periods of bright warm weather. The isobars were throughout anticyclonic in the S. and W., and therefore there was—comparatively speaking—an absence of the showery unsettled weather which attends areas of barometrical depression. At the beginning of the month a very cool polar current of air was flowing over Great Britain, the fall of temperature being so marked that on the 2nd the thermometer did not rise above 59° in London, where it had reached 91° in the shade six days previously. In Ireland finer weather prevailed. On the 5th and 6th strong S.W. to W. winds were felt, but they soon gave place to N.W. winds with very cloudy skies, a rather low temperature, and a few showers. In the afternoon of the 12th, however, the sky cleared remarkably over the whole country, and an anticyclone began to form over Ireland, where

the weather became fine and dry. During the night of the 17th the thermometer did not fall below 65.9° in the open air in Dublin, and at 9 a.m. of the 18th the barometer was as high as 30.449 inches in that city. Next day patches of electrical cirrus cloud were observed, and proved to be the precursors of a severe thunderstorm which prevailed over the sea and to the S.E. of Dublin on the morning of the 20th. Frequent thunder was heard for several hours from 3 a.m., but only a few flashes of lightning were seen in the city itself, where no rain fell. Three days of beautiful weather succeeded, but on the 23rd a "thunderstorm depression" advanced over Ireland from the Atlantic, and thunderstorms of great intensity occurred in many parts of the country. Occasional vivid flashes of lightning were seen from Dublin at night. On the 26th very heavy showers of rain fell in Dublin, where .324 of an inch of rain—or exactly half the rainfall for the month—was registered, but next day the weather again took up, with light and cool northerly winds and bright skies. This agreeable change depended on the formation of another anticyclone over the United Kingdom, the barometer rising to 30.39 inches at many stations on the morning of the 31st. The nights were clear and cool towards the end of the month.

PERISCOPE.

Edited by G. F. DUFFEY, M.D., F.K.Q.C.P.

THE USE OF ETHER WITH COD-LIVER OIL.

IN 1868, Dr. Balthazar Foster read a paper before the Medical Section of the British Medical Association, on the use of etherised cod-liver oil in phthisis. Referring to the experiments of Claude Bernard, by which it was shown that ether is capable of augmenting the secretion of the pancreas to a remarkable degree, he reached the conclusion that this discovery opened the way to a great advance in the treatment of phthisis. The defective assimilation of fats being the leading feature in the dyspepsia of phthisis, and this depending upon want of action of the pancreas, it was a clear inference that any agent which would increase the pancreatic secretion would be a valuable adjunct in the treatment of these cases. Moreover, Bernard found that ether promoted absorption independently of the emulsifying action of the pancreatic juice, and thus a double aid was to be expected from its use. Accordingly Foster administered ether with cod-liver oil to a large number of patients. The results more than justified his expectations; but, as it seemed desirable that more experience should be accumulated, it was selected as one of the subjects for observation by the Committee on Restoratives of the Therapeutical Society of New York. The result is a valuable report,

which, although only a preliminary one, is of importance to every medical man. Summing up, the report covers 81 cases in which ether was given in connexion with cod-liver oil. In 26 of these cases the combination was well borne; in 5 of them it was not well borne. In the 26 cases in which the oil with the ether was well borne, it is noted in 24 cases that either pure oil or an emulsion of oil had been tried, and had disagreed. In one case plain oil was found to agree better than the mixture with ether, and in another case the etherised oil did not answer so well as an emulsion with hypophosphites. The ether was given *with* the oil in 22 cases; after the oil—15 to 30 minutes—in 9 cases. Of these 9 cases 8 had tried, unsuccessfully, to take the ether *with* the oil; but exhibited perfect tolerance when ether was given *after* the oil.—*New York Medical Journal* for July.

DEFIBRINATED BLOOD FOR RECTAL ALIMENTATION.

THE same committee have also made a provisional report upon the use of defibrinated blood for rectal alimentation. Although the number of cases in which the treatment was adopted is small (six), still the results attained are sufficiently favourable to give encouragement for a further trial. In the cases reported—in all of which extreme irritability of the stomach, or dysphagia, was present—from one to five ounces of defibrinated bullock's blood was injected, as a rule, three times a day. Fætor of the dejections was observed in only one case. In all, more or less improvement resulted.—*Ibid.*

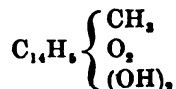
LOCOMOTOR ATAXY.

DR. HAMMOND, at the anniversary meeting of the New York Neurological Society (*N. Y. Med. Record*, July 20), referred to two cases which had lately come under his observation, in which the ataxic symptoms were marked, yet in neither instance had the patients suffered from any pain whatever. He was of opinion that electric-like pains were not such early symptoms as had usually been supposed. He had come to regard inequality or marked contraction of the pupils as one of the earliest symptoms. In some cases the gastric symptoms were prominent very early, and might exist twelve or fourteen months before ataxia was developed. Dr. McBride referred to a case in which he had observed numbness of the fingers of both hands, violent pains of the sticking variety, inequality of the pupils, very slight anæsthesia, *absence* of the "knee phenomenon," and yet there was no history of crises or ataxia. He further referred to the observations made recently by Westphal, who maintained that the absence of the "knee phenomenon" was a diagnostic point of great value. [The term knee phenomenon relates to the following facts:—"If the ligamentum patellæ be struck in a healthy man while the knee is flexed at a right angle, or

nearly so, a sudden contraction of the extensor muscles on the front of the thigh may always be felt."—*London Med. Record*, March 15, 1878.] The question of interest was whether the knee phenomenon was not already present before the characteristic symptoms of posterior spinal sclerosis were developed; and also whether its absence might not, therefore, in some cases, afford material aid in forming an otherwise difficult or impossible diagnosis.

CHRY SOPHANIC ACID IN VON HEBRA'S CLINIC AT VIENNA.

DR. A. JANISCH (von Hebra's clinical assistant) records in a paper in the *Wiener medizinische Blätter*, No. 7, 1878, some investigations recently carried out by him under Hebra's direction. He confirms the original researches of Mr. Balmanno Squire, of London, as to the efficacy of an ointment of the acid in psoriasis and in some other diseases of the skin. He prefers an ointment of 20 per cent. to one of 5 per cent. of the acid, and explains that the proper scientific name of chrysophanic acid is bioxymethylanthrachinon, the acid being a derivative of a hydrocarbon, the name of which is methylanthracen and its formula $C_{14}H_{12}$. From this hydrocarbon chrysophanic acid is derived by the substitution of two atoms of oxygen for two of hydrogen, and by the substitution of two atoms of hydroxyl (HO) for two other atoms of hydrogen, so that the rational chemical formula of bioxymethylanthrachinon (or chrysophanic acid) stands thus:—



He goes on to explain that the colouring matter of the madder-root (alizarin), which is now prepared artificially, is bioxyanthrachinon—a substance nearly allied to chrysophanic acid, inasmuch as the chemical composition of the two substances is identical with the difference only of a methyl-equivalent (CH_3). He announces his intention of testing this substance clinically in skin disease on the strength of its chemical analogy to chrysophanic acid. However, in this research he has just been forestalled (in *The Edinburgh Medical Journal* for July, 1878) by Dr. James Adams, of Glasgow, who, similarly struck by the chemical analogy of the two substances, has already tried an ointment of alizarin in psoriasis in two cases with satisfactory results.

ACUTE INTESTINAL CATARRH OF INFANTS.

DR. RAVENBURGH, of Washington, corroborates Ringer's opinion as to the value of minute doses of corrosive sublimate in this disease. He differs from him in the manner of exhibiting the remedy. Ringer recommends teaspoonful doses of a solution of a single grain of mercuric chloride in ten ounces of water (*Handbook of Therapeutics*, 6th ed., p. 236). Ravenburgh

prescribes one grain to twelve ounces of distilled water. One teaspoonful to be mixed with an ordinary teacupful of milk, previously subjected to at least 150° F. for five minutes; the milk should never be brought to the boiling point. Of the milk so prepared he gives to the infants as much at a time as age and the condition of the patient may demand. This in ordinary cases. In the severer forms of this disease, it may be necessary to use this remedy with a cupful of boiled and cooled water as an injection into the rectum. If desired, starch and laudanum may be added, as the physician may deem proper. As an explanation of the *rationale* of this treatment he states that subjecting the mucous masses passed by stool, during a severe attack of diarrhœa, to a microscopical examination, he was struck with the number of infusorial micro-entozoa present. Mercuric chloride, it is well known, occupies a high place as an anti-ferment; and hence its value in these cases. In the same way the severe burning and tenesmus of diarrhœa in the adult may be relieved by the injection of ten minims each of oil of turpentine and of carbolic acid in two ounces of water. This is instantly effective in destroying the infusoria to which these symptoms are probably due.—*N. Y. Med. Record*, July 6.

NON-EMBOLIC PULMONARY INFARCTS.

PROF. E. GALVAGNI sums up a clinical note on this subject (*Riv. Clin. di Bologna*) as follows:—1. Pleuritic exudation, by the pressure it exercises, sometimes produces infarcts in the lung which have not an embolic origin. 2. The production of infarcts may be suspected at the first by bloody sputa (hæmorrhagic period), and later on by rusty expectoration; these phenomena may be present or absent according to the greater or less number of infarcts, their dimensions, and the existence of a bronchial catarrh. 3. Some of the infarcts may undergo a caseous change, which would explain the frequency of pulmonary phthisis as a sequel of pleural effusions. 4. For this reason it is especially necessary to perform thoracentesis opportunely and with a suitable apparatus, as well for the purpose of preventing the formation of infarcts, as, if they have been already formed, to enable the lung to re-expand.—*Gaz. Méd. de Paris*, 6 Juillet.

STEPHEN'S-GREEN BATHS, DUBLIN.

IN the notice in last month's Journal of the new Turkish Baths, opened in Stephen's-green, Dublin, we omitted to mention that the admirable system of heating and ventilation of the Turkish Baths and Laundry, which was executed by Messrs. Sloane and Sons, Dublin, under the direction of Mr. A. G. Jones, the architect, is on a principle entirely new in this city. As we stated already, it is a complete success, and reflects great credit on both the architect and the firm of Sloane and Sons.

THE GROSVENOR GALLERY.

SOME of our readers may, perhaps, regard art-criticism as lying outside the sphere of a medical journal; but Sir Coutts Lindsay having kindly sent the editors an art-critic's ticket for the Summer Exhibition of the Grosvenor Gallery, it seems but courteous that a brief notice of it should appear in our pages.

Sir Coutts Lindsay may be fairly congratulated on the success of his spirited undertaking. Notwithstanding the enormous number of picture exhibitions at present existing in London, this gallery has its distinct *raison d'être*, inasmuch as it affords the public an opportunity of seeing a certain class of works, either not seen at all, or seen to less advantage in other exhibitions. It is to be regretted that as yet neither Mr. Dante Rossetti nor Mr. Maddox Brown has appeared among the exhibitors; but, spite of this, the Summer "Grosvenor" bids fair to become a cherished institution with art-students.

Mr. Burne-Jones, this year as last, stands alone as the one painter who, with distinctly ideal aims, has attained to consummate mastery of technical expression. He is one of the very few English painters who has so thoroughly learnt how to paint that he can meet the great Italian colourists on equal terms, while as a draughtsman he surpasses many of them in delicate grace. Faults he has, no doubt, as what painter has not—painting being the art of all others in which absolute perfection is least attainable, a compromise between various forms of excellence being inevitable; but who shall say that these faults, where they are not the imaginary product of ignorance and presumption in the critic, exceed what may fairly be allowed for as *les défauts de ses mérites*? His ideal is undoubtedly a limited and somewhat morbid one. Life for him is apparently not a thing of wholesome struggle, of defeats and triumphs, but a condition of sensuous melancholy, of voluptuous discontent. Hence the monotony of his pictures, with their perpetual reproduction of the same types, male and female, with graceful lassitude in all their limbs and beautiful ~~eyes~~ in all their faces. It is vain to expect much dramatic expression from such a man; and all his best work, like that of most great colourists, owes its charm to its dreamy idyllic beauty. His art is the "still-unravished bride of quietness."

This year he has nothing so supremely beautiful as the "Angels of Creation" of last year, unless, perhaps, the "Chant d'Amour." The series of "Day," "The Seasons," and "Night," notwithstanding much beautiful painting, is in his feeblest style. The lackadaisical expression of "Day," who does *not* rejoice like a strong man to run a race, verges

upon the ludicrous. He might appropriate to himself the motto given to Autumn :

"Here I stand,
Worn of heart and weak of hand,
Nought but rest seems good to me ;
Speak the word that sets me free."

"*Laus Veneris*," which has the post of honour, is certainly a splendid piece of work, glowing, as does every inch of the canvas, with rich colour. Its fault is, in fact, that it is too brilliant. Each separate field of colour is "beautiful exceedingly;" but the effect of the whole is too dazzling. The incident of the knights riding by the window is most felicitously treated. A breath of wholesome open air, full of daylight—seldom felt in the master's works—seems to be blown into the luxurious interior, where Venus reclines, wearily listening to the music of her maids. The "*Chant d'Amour*" contrasts favourably with this last picture in point of tone. It is, indeed, as a mere piece of painting so superb that it would be difficult to find anything to surpass it in the best Venetian work. The recumbent knight is almost a realisation of what we dream of Giorgione's lost pictures. "*Pan and Psyche*" is quaint, rather preposterous at first sight, but finally fascinates. "*Perseus and the Graiæ*" is something novel in modern art; the combination of thin metal plates with colour, exquisitely managed as it is, not being altogether satisfactory. The daintily-modelled golden dresses of the Graiæ and the silver armour of Perseus give the eye a sense of imperishability belied by the delicate painting of the faces, hands and feet. Even as it stands, these most important parts of the human figure are a little overweighted by the draperies; and what will it be in a century or two? Still we have here a splendid piece of ideal decorative art.

Mr. Watts contributes two allegorical pictures—"Mischief," and "Time and Death." In the latter there is some novelty of conception. Time, represented as a young man with a sedately relentless face, strides ahead, apparently rolling the world before him, and beside him goes Death, a woman with downcast, pitiful eyes, and lap full of plucked flowers. Behind follows Justice, weighing the results of life in her scales. There is something imposing in this design, which in the hands of Paul Veronese would have produced a magnificent picture. In Mr. Watts's this is scarcely the result. How the artist who could paint a picture so full of pictorial charm as the small "*Sir Galahad*," could paint these large allegories, in which there is so little, is a mystery. They are like the works of a man expressing himself through a medium imperfectly mastered.

Of other attempts at "high art" not much can be said. That absence of imagination and efficiency in academic training, so conspicuous on the walls of the Royal Academy, meets us here also, though in a less pronounced manner. Mr. Walter Crane's ambitious "*Fate of Persephone*,"

with its black horses ramping over the flowers of spring, and touch of Dis's hand on the maiden's arm, is imaginative in conception, but wooden in execution. Mr. Strudwick's "Passing Days," with its graceful procession of female figures, is well conceived and delicately painted.

Mr. Albert Moore has two decorative colour-studies, in his usual manner. He never rises above his dead level of monotonous excellence. Mr. Armstrong's "Three Figures on a Marble Seat" shows a more robust feeling for the beauty of the female form, with less exquisite skill in execution.

Mr. Alma Tadema's six pictures are, as usual, careful studies of archæological detail, admirable as peeps into antique life.

In more homely subjects we have some good work. Mr. Boughton's "Rivals" is a good example of the painter, who has caught something of Fred Walker's power of giving to commonplace incident an idyllic charm; and Mr. Thomas Graham's "Mudlark," not remarkable as a mere painting, is full of human interest. This "fair little social crab—left high and dry at ebb tide," with her graceful, savage innocence, makes us love all little ragged children for her sake. M. Legros is not in his element when he lets go his hold on real life. His "St. Sebastian" looks singularly feeble beside such a thorough piece of work as his "Repos des Pauvres," in which the strongly-painted figures are so full of life. His "Close of Day" has a little too much dashing cleverness to be up to his own highest mark. Mr. Herkomer's "Who Comes Here" is a fine study from real life, and his portraits, especially that of Wagner, are very powerful. Mr. E. J. Gregory also exhibits a capital portrait of an old sportsman, Mr. W. T. Eley, evidently true to the life.

The much-abused Mr. Whistler still sticks to his "Nocturnes." This year his subjects are perfectly intelligible, and, at the proper focal distance, beautiful tone-studies. As much can hardly be said for his dauby portrait "arrangements," which are whimsical in drawing and ugly in colour.

Mr. Cecil Lawson's two large landscapes are full of original feeling, and ought to give him a high rank among our landscape painters.

There are some good things in the water-colour room—among others Mr. Poynter's clever, unideal sketches in Funchal; Mr. Walter Crane's coast-study, which is not only a delicate piece of sand-painting but gives the spirit of the scene; and Mr. Wallis's "Sheltered Haven," its chalk-cliff and downs sleeping in summer daylight. The Marchioness of Waterford's designs are good pieces of amateur work, especially "Christmas," which is beautiful in idea and cleverly painted. Among the fruit and flower pieces Mr. Jopling's "Wall-flowers" is particularly rich in colour. Mr. Doyle's designs are very amateurish in execution—his portrait of Miss Blanche Egerton below the level of even decent amateur work. His best drawing is "Fish Out of Water"—a spirited sketch of sailors trying to keep a crowd in order.

JOHN TODD HUNTER, M.D.

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MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. IX.—*The Treatment of Heat-Apoplexy with Ergot.* By
ROBERT F. DEDRICKSON, L.R.C.P., Edin.

WHEN in Calcutta in July last, the heat was very intense, being one day 103° in the shade. It fell to my lot to have several cases of sunstroke under my care; and being struck with the great mortality arising from the disease, I am induced to lay before the profession the treatment I successfully adopted, believing it to be novel.

The first case I was called on to attend was that of a steward on board one of the Peninsular and Oriental Company's steamers. He was lying in a state bordering on coma, but was capable of being roused, and answered questions in an absent way. I obtained the following history from one of his companions:—Having been sent ashore about noon, he walked for nearly an hour in the heat of the sun, and, "feeling queer," indulged in some brandy and soda-water. On his return to the steamer, he complained of great pain in the head and all down the back. He had to lie down; and then it was that I was sent for, and found him in the following condition:—Pulse very rapid, strong, and bounding—almost sledge-hammer; action of the heart very strong and slightly irregular, but not intermittent; the pupils widely dilated. The sensation given on placing the hand on any part of the body resembled exactly the feel of a board that had

been exposed to the rays of a powerful sun, being burning hot and dry. I ordered him to have ice applied to the nape of the neck and head, and to have fifteen minims of liquid extract of ergot and three minims of tincture of aconite every hour. The bowels were loose, therefore I did not order a purgative. I saw him again the following morning, with Dr. Waller, of Calcutta, whom I had the pleasure of meeting in consultation. He was then greatly improved; pulse quiet, temperature reduced, not quite so drowsy, but still suffering from the pain down the back and in the head. The nurse who sat up with him during the night stated that when she gave him a dose of twenty grains of quinine—ordered him by Dr. Waller in the night—he vomited, and appeared so bad that she gave him a dose of the mixture (ergot and aconite). He at once (she said) appeared better, and improved after each succeeding dose. Dr. Waller and myself agreed to continue this treatment, and with the greatest success, as in a few days his recovery was complete.

I may here mention that the twenty grains of quinine given by direction of Dr. Waller is a very usual remedy in the East for sunstroke. The ergot treatment which I adopted was unknown to Dr. Waller, whose experience and practice are very great, but I have pleasure in knowing that he highly approved of it.

Shortly after the above case, I was called to another—that of an English sailor who went ashore, during the heat of the sun, wearing a small black hat, and, on his return to his ship, became quite insensible. When I saw him I had ice placed on the nape of the neck and let dissolve there. In about fifteen minutes, when he was sufficiently conscious to swallow, I gave him ergot—leaving out the aconite, as in his case the action of the heart was very weak. He also made an uninterrupted and good recovery.

I likewise treated several minor cases of heat-apoplexy—in which there was great pain down the back and in the head, with suppression of perspiration—successfully with ergot.

When attending these cases it struck me that had the state of coma advanced so far that the patient could not swallow the ergot, ergotine might have been usefully administered hypodermically. I offer this now as a suggestion only, as I do not know whether in a case so advanced it would be of any use, yet I think it would be worthy of trial.

ART. X.—*Chronic Cervical Metritis, treated by Interstitial Injection, coupled with Dilatation.** By JAMES M. BENNETT, M.D.; Surgeon to the Liverpool Surgical Home, and Consulting Surgeon to the Liverpool Dispensaries.

AMONGST the diseased conditions which come under the care of the gynæcologist, there is not one apparently so slight, and yet so difficult to cure, as the chronically enlarged os uteri. Whether we accept the old pathology, and regard the first stage as simple engorgement of the parenchyma (congestion), and the second as consisting in lymph effusion without suppuration—the parts remaining unaltered in size, or even being diminished with increased induration—or, on the other hand, we receive the opinions of Scanzoni, Klob, and others—who believe that no inflammatory action is necessary, but simply congestion and a proliferation of the connective tissue of the part—as the correct definition, the facts remain that engorgement, sensitiveness, increase of weight, and induration, as the result of abnormal action, present themselves as a disease so frequently as to lead authorities like Sir J. Y. Simpson, Marion Sims, Henry Bennett, Atthill, Aran, Churchill, West, Scanzoni, Graily Hewitt, Barnes, and many others, to lay particular stress upon its diagnosis and treatment.

From the number of authors I will just give the special remarks of a few. Simpson says that inflammatory enlargement and induration of the tissues of the os and cervix are very frequent in practice, and exist in most cases of very chronic leucorrhœa; Marion Sims found it the most frequent of diseased states, and considered that it always existed in conjunction with artificial occlusion of the os; T. Gaillard Thomas considers it the most important subject in his work; and Dr. Atthill says these cases have long been the opprobrium of the obstetric physician, whilst their extreme frequency gives to them an importance which the direct effects they exercise on the duration of life does not warrant. I think I need hardly quote further authorities to point out their importance, and can recommend none who so well distinguish the main features by which the benign and malignant varieties are to be recognised than Drs. H. Bennett and Graily Hewitt.

As to the causes of this diseased state, time will not permit me to examine them further than to state that parturition, injuries,

* The substance of a paper read before the Lancashire and Cheshire Branch of the British Medical Association, 1878.

excessive sexual indulgence, the use of pessaries, and long-standing dysmenorrhœa, which, according to Scanzoni, rarely fail to induce some change of tissue in the uterus, the most common cause being "hyperplastic enlargement." Dr. Rigby does not seem to have been so far astray when he said that the uterus being placed at the lowest part of the trunk, had to support the chief weight and pressure of the intestines, and being subject to such great periodic alterations of vascularity—not to mention the wonderful changes undergone during pregnancy and parturition—was particularly liable to be the seat of congestion.

Of its complications I shall merely mention displacements, cystitis, cellulitis; and—by interfering with the functions of the uterus—menorrhagia, dysmenorrhœa, and sterility, as its frequent accompaniments.

Of its treatment, from Dr. Rigby, who mainly depended upon general measures, to our latest authorities, many and varied have been the means adopted for its cure. Simpson, after describing the use of Vienna paste, nitric acid, &c., concludes with the recommendation of the abandonment of all in favour of perhaps the most destructive, potassa fusa, which he directs to be applied in the form of a stick, and to be well rubbed in, until a piece three-quarters of an inch, or even an inch, was melted down. Well might he say the decomposition produced a hissing sound.

The editor of Sir J. Y. Simpson's work upon "*Diseases of Women*," says that the caustic was used far less frequently than might be inferred.

Gendrin depended upon Vienna paste, whilst Jobert used the actual cautery until, he says, "it melted away." Many of their followers adopted the same line of practice, but in a more moderate form. Marion Sims treats by dilatation, and thinks highly of the power of the sponge-tent to modify the condition of the uterine surfaces with which it comes in contact. He says it dilates the neck of the womb, softens it by pressure and by a sort of serous depletion, reduces the size not only of the neck, but of the body of a moderately hypertrophied uterus, whilst the addition of glycerine sets up a sort of capillary osmosis. The same authority, speaking of the abuse of potassa fusa, potassa cum calce, and even nitras argenti, says sometimes the os tinæ becomes wholly occluded by the prolonged use of these agents; more frequently it is partially closed, and the cervix always contracted. Dr. Greenhalgh treats with iodised cotton and glycerine.

Having tried most of the constitutional and local formularies recommended by our most celebrated authorities, I was induced to try the interstitial injection of iodine, from the fact that I had, in the first place, obtained more benefit from its local application in the form recommended by Dr. Greenhalgh than from any other treatment adopted; and secondly, from the consideration that if such benefit could be gained by its application to the indurated covering of the os uteri, much speedier and more lasting results might be attained by the absorbing agent being brought into direct contact with the new hypertrophic matter distributed in the midst of the uterine tissue, and that in a position where absorption might be looked for. Acting upon these considerations, I first prepare my patient both generally and locally. Locally, by relieving any engorgement by local depletion carried out by means of cupping, the frequent use of warm water lavements, and the application of glycerine, so as to induce osmotic action, care being taken to avoid the period of menstrual excitement. I then use a simple modification of the hypodermic syringe, which you may perceive is sufficiently long to be used with Fergusson's speculum; its points are made of 18 carat gold; and the other portion, which might come in contact with the iodine, bromine, or other agent inimical to any metal less resistant than gold or platinum, is mercurially gilt. The instrument should be charged with a solution composed of ten grains each of the iodide and bromide of potassium, to which half a drachm of tincture of iodine and sufficient distilled water should be added to bring it up to two drachms. I then either puncture through the speculum, leaving the uterus free when low down, or fix it with Sims' tenaculum, using a duck-bill speculum. I generally make from three to five punctures, according to the amount of hyperplastic matter to be absorbed; a cotton pledget, well soaked in glycerine, is placed against the part, and rest enforced for at least twelve hours. I seldom find that more than three operations are required, and have never known any disturbance of moment set up, either generally or locally, by its use; but, on the contrary, have had a number of cases turned out successfully where other methods had proved unavailing.

I may mention that I have now a case under observation where a female of thirty-eight years of age, who had been the mother of three children before she was thirty, who had suffered from subinvolution, followed by chronic cervical metritis, and who remained barren until after December last, when I treated her by the

foregoing method, is now in the fifth month of pregnancy, and enjoying good health.

In most cases I combine the treatment with dilatation, by means of the sponge-tent, which I put in practice after the first effect of the interstitial injection has passed off. By means of these combined methods of procedure my most sanguine expectations have been fulfilled, the hypertrophied os materially lessened and reduced by resolution to its healthy conditions, and that with an absence of those after-consequences, such as loss of tissue, painful cicatrices, and stricture, which must have been observed by the practitioner who has steadily adhered to the mode of treatment by caustics, cauteries, &c. I may add that I have ventured to try this mode of treatment in some cases of chronic sub-involution—with this difference, that I first began with the interstitial injection of a solution of ergotin, and followed it after an interval with the iodine injection. My success has been such as to warrant a more prolonged trial.

The only drug administered has been the bromide of potassium in large doses, with the double purpose of quieting nervous excitement, and possibly of obtaining some of the benefits described by Professor Binz, of Bonn, who speaks of the potash salts as being positively specific in sub-involution, mythical as it may appear. I have many times seen advantages derived from a continuous use of this salt, equal to those described by Dr. R. Williams, who attributed such wonderful powers to its action in splenic hypertrophy.

THE ELIMINATION OF QUININE BY THE URINE.

M. PERSONNE has communicated to the Académie de Médecine the result of his researches on this subject. He finds that quinine taken into the system is destroyed, and that the destruction represents about one-half of the quantity taken. This destruction of quinine is rendered evident by the following facts:—1. All the quinine extracted from the urine and soluble in acids may be transformed into neutral sulphate of quinine without appreciable residue; 2. A resinous matter, soluble in acids, is always obtained. This resinous matter is in every way similar to that obtained in the extraction of the cinchona alkaloids. It follows, therefore:—1. That the quinine eliminated by the urine undergoes no alteration or isometrical modification; and 2. That half, at least, of the quinine taken is completely destroyed in the economy.—*Gaz. Méd. de Paris*, Août 31.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT WORKS ON NECROSCOPY AND PATHOLOGICAL ANATOMY.

1. *A Manual of Necroscopy, or a Guide to the Performance of Post Mortem Examinations.* By A. H. NEWTH, M.D. Pp. 157. London: Smith, Elder, & Co. 1878.
2. *A Compend of Diagnosis in Pathological Anatomy, with Directions for making Post Mortem Examinations.* By DR. JOHANNES ORTH. Translated by F. C. SHATTUCK, M.D., and G. K. SABINE, M.D. New York: Hurd & Houghton; London: Trübner & Co. Pp. 440. 1878.
3. *An Introduction to Pathology and Morbid Anatomy.* By T. HENRY GREEN, M.D., London. Fourth Edition. Pp. 440. London: Henry Renshaw. 1878.

THE author of the first of the above works, in the preface, states that he will be glad to receive corrections and suggestions. It is to be hoped he will not consider the remarks we may make as aids for the preparation of a second edition. To begin with its merits, we can only mention one—its brevity. For this at least we are really grateful, since from the plan of the book it would have been possible to have made it of any conceivable length. It embraces facts—at least what are intended for facts—of the most encyclopædic description. There are scattered medico-legal observations, occasional sentences that have strayed from a physiological primer, and hints on Practice of Medicine which might be valuable were there no such branch of medical study. As regards any special information on the subject, Dr. Newth evidently presumes that his reader's mind is a *tabula rasa*, and his frequent iteration of the value of care and caution shows that he believes the novice in necroscopy has left the most ordinary common sense behind him.

The method of opening the body recommended by the author is much the same as Virchow's, with a little originality which is not

an improvement. The longitudinal incision is reversed—that is, it is to be carried from the symphysis pubis to the sternal notch, and, “unless great care is required, right through the abdominal walls.” “The contents of the abdomen should be examined and removed in the following order:—1, the omenta; 2, the stomach (tying closely both orifices first); 3, spleen and pancreas; 4, intestines (notice first the ductus choledochus and vermiform appendix: tie up both ends); 5, liver (take care not to injure the connexions);” &c., &c. It is not very clear why the omenta should be removed first—in fact, why should they be removed separately at all when they can be readily turned aside? but it is still less clear how, under the heading No. 4, the ductus choledochus can be inspected *in situ* with the intestines, seeing that it lies between the folds of the lesser omentum, which has already by his direction been cut away.

Under the head of Special Examination there is a prefatory remark that “some recommend removing the whole of the viscera *en masse*.” We cannot conceive such a recommendation, except for taxidermic purposes; our author, however, without condemning it, contents himself with stating “that it will be generally found most convenient and satisfactory to examine the organs *in situ*, and remove separately, unless for special reasons.” The pericardium is first mentioned. “It may be adherent, perforated (from mediastinal abscess, aneurism, &c.); congenital defects are rare and uncertain: the membrane may be absorbed.” What the last clause may mean is a puzzle. We know what absorption of a cataract means, or the absorption of a pericardial effusion; but the absorption of the pericardial membrane itself would be a phenomenon unparalleled in the history of disease. We are told among the lesions of the pericardium “the external surface may be thickened, covered with false membranes, cartilaginous patches, milk spots (uncertain what these are), ossiform plates, ulcerations,” &c. At first we thought that by “external surface” the parietal wall of the pericardial sac was meant; but we were wrong, as in the next sentence we are told that the “internal surface may be dry, wrinkled, sticky, roughened, granulated, adherent to the cardiac layer,” &c. So that, on the whole, we are at a loss to know what part of the pericardium is intended by “external surface covered with the false membranes, milk spots,” &c. This confusion of idea is observable everywhere. A caution is given that “normal contraction (*systole*) of the heart must not be confounded with hypertrophy;” the *systole* can only

mean *rigor mortis*. There is one exposition of Dr. Wilks' view of the cause of "milk patches" which will certainly surprise that gentleman. He (Dr. Wilks) "thinks they are due to attrition, a kind of wart, as from pressure of a belt on the chest." It is a peculiar idea of the anatomy of a wart. The absolute weight of the heart varies, we are told, from 9 to 12 ounces in males, and from 8 to 10 in females, but the proportion to body-weight is expressed in odd and exact numbers, 1 to 169 in males, 1 to 149 in females. But the most remarkable statement in connexion with this organ is that "in order to distinguish the right side of the heart from the left it is useful to remember that the tricuspid valve is on the right (dextra), and the mitral valve is on the left side." This is perhaps severely ironical on the attainments of "practitioners and students," for whose use the book professes to be written; but the joke is long-winded, and will hardly be appreciated by the infantile Ninevites of science. It is inconsistent in the next page to impress upon those who require such a reminder that the "nerves of the cardiac plexus ought to be carefully examined." There is no hint how this is to be done, nor what morbid appearances, microscopically or otherwise, are to be looked for. In the paragraph on aortic valve lesions there is a gratuitous and dogmatic assertion that "aortic valvular disease is infinitely more dangerous than mitral disease." Dr. Newth is a much safer student's guide when he confines himself to elementary facts in anatomy. Thus no one competent to undertake necroscopy will challenge the information contained in page 79, that "the tubuli uriniferi terminate in an expanded part of the kidney called the pelvis; this is a continuation of the ureter," &c.; or that the "choroid plexus is of a venous nature, and probably assists in regulating the central circulation," provided that "central" only means what ordinary people call "cerebral." If he means the circulation through the centra ovalia his adjective is not a happy one. Further illustration would be tedious. From the account given of the removal of the spinal cord it is hard to resist the conclusion that the writer never saw this region except in rough anatomical plates. The English in which the work is written is worthy of its pathology. We have "intercranial" aneurisms for intracranial: we have such terms as "respired" lung, "gummaceous" tumours, "empyaemia," "phthisic" cavities, and "pathologic" liquids.

In conclusion, we would suggest to the author one little correction which might be of practical use in case he should ever begin

the study of the subject on which he has written—viz., that decomposition does not render a *post mortem* wound more dangerous, but less so. He has classed decomposition with peritonitis and puerperal fever as increasing the necessity for precaution against scratches. We hope his good fortune will not be in the measure of his knowledge.

It is refreshing to turn to a work offering so marked a contrast to the preceding one. Dr. Orth is no smatterer in rudimentary anatomy, but a thoroughly practical pathologist. He holds the post of First Assistant in Anatomy at the Pathological Institute in Berlin; and this able translation of his work has had the advantage, in its passage through the press, of having received numerous additions from MS. prepared by the author, and of a careful revision by Dr. Fitz, Assistant Professor of Pathological Anatomy in Harvard University.

The original work—"Compendium der Pathologisch-anatomischen Diagnostik"—was published in 1876, and is, deservedly, favourably known in Germany. It was chiefly intended for the benefit of those Prussian practitioners who, under the admirable official regulations for the performance of autopsies for medico-legal purposes in force in Germany, might find themselves, if called upon, deficient in the necessary theoretical knowledge. Few students, or practitioners, are able to secure such special opportunities of practical training that they can educate themselves in this important subject by the ultimate discovery of their mistakes. To the great majority of English-speaking practitioners, Drs. Shattuck and Sabine's excellent translation will supply what we believe to be a long-felt want. It will enable them to make the utmost of the autopsies that may fall to their lot, and help them to avoid those errors which, from ignorance and want of method, are unhappily too common. At the same time it will prove an admirable guide for the *post mortem* room and an excellent manual of morbid anatomy.

Having already borne our testimony, in a notice of Virchow's "Method of Performing *Post Mortem* Examinations" (*Dub. Med. Jour.*, Vol. LXII., p. 393), to the importance of a regular and systematic method of making and recording such examinations, we need not dwell further on the subject here. Virchow's method, upon which the German official regulations are based, is followed by Orth. Moreover, while each step of the examination is laid down, the

mode of its performance is explained—the points to be borne in mind are noted, and the naked-eye appearances in various morbid conditions described. Although the description of the macroscopic appearances of disease is the essential feature of the work, wherever necessary for the purpose of more exact diagnosis, the microscopic appearances, so far as they may be verified by an examination of fresh specimens, are also described. In a word, every page of the work reveals a familiarity with his subject such as only an author whose career has been devoted to morbid anatomy could exhibit.

The style and scope of this valuable work may perhaps be better appreciated by letting it speak for itself. Opening the volume (at p. 181) we find, first, suggestions for the order in which the abdominal organs are to be removed and examined. The mode of removal is then explained in the case of each organ respectively, and its general and special appearances and conditions, on external and internal examination, succinctly described. For example, we have the following account of hepatic tuberculosis:—

“Tuberculosis of the liver usually appears in one of two forms, either as a disseminated miliary tuberculosis of the parenchyma, or as tuberculosis of the gall-ducts. *Disseminated* tuberculosis is always secondary, and of very frequent occurrence; it is never absent from the liver, after even a few organs have become affected by secondary tuberculosis. The tubercles of the liver are among the smallest known, and are consequently very liable to be overlooked. In order to be perfectly sure of their presence the microscopic examination must always be made whenever there is the least possibility of tuberculosis of this organ; it can then be seen how many thousands of tubercles would escape notice, without the aid of the microscope. The largest ones are evident to the naked eye as minute gray granules the size of a pin's head. They are situated at the periphery of the lobules, but the microscope shows that they are not only between but also within them, so that a portion of the parenchyma is replaced by the nodules. Some of the nodules are situated upon the smallest bile-ducts, and, consequently have a yellowish-green colour, which thus renders them more readily recognised. In children the tubercles become larger, from the size of a millet-grain to that of a pea; they are then composed of an aggregation of minute tubercles.

“Upon microscopic examination the tubercles often present the frequently described reticulated structure and giant-cells, but both giant-cells and a coarse reticulum are frequently absent.”

“The second form is chiefly seated within the walls of the *bile-ducts*,

not in the small ones between the lobules but in the larger tubes. The disintegration of the tubercles leads to ulceration of the surface, as in the ureters, and the canal is filled with cheesy material and bile, so that a cavity of the size of a pea, bean, or even cherry, is seen on section, the walls of which are composed of a firm cheesy mass, and the contents are pultaceous, stained yellow or green by bile.

"Although large tubercular nodules are rare in the liver, it is necessary to know that they are occasionally met with from the size of a walnut to that of the fist. These are distinguished from cancer, which they may greatly resemble in form, by their uniformly dry and cheesy character, and the entire absence of any milky fluid when squeezed. Isolated submiliary nodules are seen with the microscope in the most recently affected places, which indicate that these nodules also consist of a conglomeration of small tubercles."

In this country, where every medical practitioner, without having had any special previous education or knowledge, is liable to be called upon to make a *post mortem* examination, and give evidence as an expert—it may be in a case involving a charge of murder—such a guide as that furnished by Orth will be simply invaluable. Many important medico-legal points also are mentioned. To one especially we would direct attention, as we believe it has not been generally recognised. We refer to a remarkable condition of the epiglottis—described as the *suffocative position of the epiglottis*. The surface of this organ is normally but very slightly curved from side to side; but in all forms of death from suffocation, Orth says that its edges are found to be more or less approximated in extreme cases, producing a wedge-shaped appearance. The term "wedge-shaped" may not, perhaps, completely convey the idea as expressed in the original—"vollständig halbrinnenförmig gekrümmt"—but the condition described should be borne in mind in the investigation of cases of death by drowning or other mechanical causes of asphyxia.

We strongly recommend this work—feeling sure that anyone who uses it as a guide in making *post mortem* examinations will endorse our recommendation.

No better proof of the increasing popularity of Dr. Green's manual could be given than the fact of a fourth edition being called for so soon after the publication of the third. Till this manual appeared there was no treatise on the subject of Pathology with which the student could be expected to make himself familiar. He had not

the time to read the larger systematic works, and he generally depended for his knowledge on his observations in the *post mortem* room or the incidental references to the subject that might occur in his reading of Practice of Medicine or Surgery. Dr. Green's handbook supplied the long-felt want—it was comprehensive without being bulky, and the results of investigation were clearly and dogmatically stated without troubling the learner's mind with the conflicting opinions of authorities or the tentative hypotheses of speculation. It therefore started as a favourite, and the new matter which has been added from time to time shows that the author is determined to retain the popularity he has so deservedly won.

In the first half of the present edition—the chapters on Tumours and Degenerations—there is but little change on the preceding one. The Classification of Tumours, however, is altered, and we think improved. They are now divided into five classes, the first comprehending all tumours of the type of the fully-developed connective tissues; the second having the higher tissues as its type; the third the embryonic connective tissue tumours—*i.e.*, the sarcomata; and the fourth and fifth classes are the carcinomata and the cystic tumours respectively. The first class end with lymphomata, about which one statement perhaps might be called in question—*viz.*, that “occurring in the mediastinum they may invade both lungs, and constitute here the most common form of mediastinal tumour (so-called ‘thoracic cancer’).” He now states his belief that enlargement of the spleen in ague is of the same nature as a lymphoma. A rapidly-growing malignant form which he describes is more commonly called lymphadenoma, corresponding to the lymphosarcoma of Virchow.

The sarcomata are not only placed as a type of themselves, but divided somewhat differently from the arrangement of them in the third edition. The spindle-celled are divided into four classes—large spindle-celled, small spindle-celled, melanotic, and osteoid. Under round-celled are comprehended glioma and alveolar sarcoma, that rare form to which Billroth has chiefly drawn attention. In it the cells, which are large, sharply-defined, round or oval, are separated from each other by a more or less marked fibrous stroma. In some parts this stroma forms small alveoli, within which the cells are grouped; but careful examination will always show that in most parts of the section the stroma really penetrates between each individual cell. It is this last-named character which serves

to distinguish these tumours from carcinomata, with which in many cases they may be easily confounded. Psammoma is still somewhat curiously tacked on to sarcoma. The chapter on Carcinoma is almost unaltered, but we still think it would have been better, as we suggested before when noticing a previous edition, that the term "caner" should be reserved for clinical use only, and that for histological purposes the more definite term "carcinoma" should be employed.

Immediately after Inflammation considered generally, a short chapter on Scrofulous Inflammation has been inserted. Rindfleisch's view—that the caseous metamorphosis is due mainly to obstruction of the supply by the persisting cell-infiltration—is adopted. As might be expected, the chapters on diseases of the lungs have been carefully revised, especially that on Pulmonary Phthisis. In the chapter on Inflammatory Diseases of the Kidney the chief change is the separation of the nephritis which occurs after scarlatina from the ordinary acute Tubal Nephritis, and the establishing of it as an independent affection. The differentiation was described at considerable length last year by Dr. Klein in a paper read before the Pathological Society of London, and on page 329 Dr. Green gives a concise *résumé*. The Pathology of the Brain and Spinal Cord is not by any means as full as it might be. More space might profitably have been spared to the lesions observable after death from tetanus, epilepsy, sclerosis, and infantile paralysis.

Except in the direction we have indicated, we feel bound to give Dr. Green's handbook unqualified praise. Twenty-one new woodcuts have been added, mostly from his own microscopical preparations; and the industry with which the most recently-discovered facts have been collated keeps it well abreast of progress in pathology.

Brain: a Journal of Neurology. Edited by J. C. BUCKNILL, M.D., F.R.C.P., F.R.S.; J. C. BROWNE, M.D., F.R.S.E.; D. FERRIER, M.D., F.R.C.P., F.R.S.; and J. HUGHLINGS JACKSON, M.D., F.R.C.P. London: Macmillan & Co. Parts I. and II.

THIS Journal, the recent addition to medico-scientific periodical literature, has been started on its career with a fair prospect of success, if we may be allowed to judge by the contents of the first

two numbers which have come to hand. Its conception has been opportune, and the names of the *collaborateurs* who occupy the editorial chairs are in themselves sufficient guarantee for the character of the material which will find place in its pages. Hitherto the absence from the list of British periodical medical literature of a Journal devoted to the discussion of neurological science, as distinguished from that exclusively or mainly psychological, such as we find represented across the Atlantic by the *American Journal of Nervous and Mental Disease*, was noticeable, and it is to fill such a gap that the periodical before us has been designed. The first number was issued in April, and contained able articles by Jonathan Hutchinson, G. H. Lewes, H. Duret, Clifford Allbutt, &c., many of which were of interest as well to the general physician as to the neurological expert. The ophthalmic surgeon will find much to interest him in Mr. Hutchinson's contribution "On the Symptom Significance of Different States of the Pupils," while we can strongly recommend to all the perusal of Dr. Clifford Allbutt's thoughtful and eloquent article on "Brain Forcing," and its evil train of consequences in relation to the education of our youth. In addition to original articles, the Journal contains many interesting clinical cases carefully recorded, the collection of which must do much to advance the study of brain disease, and in time to aid in settling many of the now controverted points. Critical digests of papers of interest from British and foreign current neurological literature, together with abstracts and receipts, form a considerable and important item in the programme, and, we think, considerably enhance its value, as many such digests are more acceptable to the busy reader than the papers or books themselves could be. The second number, published in July—the Journal appearing quarterly—is, we think, quite equal to its predecessor, containing articles by Lauder Brunton, J. Hutchinson, Buzzard, Lawson, Milner Fothergill, and H. Clarke, which pressure on our space prevents us now noticing, and the material under the other heads is abundant and well-selected. We may fairly congratulate the promoters on the start they have effected, and we wish for the undertaking the full measure of success which we believe its design merits.

Morbid Craving for Morphia. By EDWARD LEVINSTEIN, M.D.
Translated from the German by CHARLES HARRER, M.D.,
L.R.C.P. London: Smith, Elder & Co. 1878. Pp. 131.

THE peculiar train of symptoms, both physical and mental, amounting to distinct disease, which are now known to follow on the persistent and excessive use of morphia, must be of interest to every physician. The acquaintance with such symptoms, and the means of successfully combating them, are all the more necessary now since the administration of this drug hypodermically has within recent years made such rapid strides, as a means of relieving pain of all kinds—and since, as the result of this, individuals who, having once experienced its beneficial effects in this way, take its use into their own hands, perhaps without a knowledge of their danger in so doing. Thus, if not saved in time, such persons may quickly fall victims to the morbid craving for the lethal drug. Examples of this craving for morphia in its incipient stages frequently come under notice, and if not checked in time may lead to the direst results.

The work now under notice contains a systematic description of the various symptoms which accrue from the abuse of morphia, as well as those which follow on sudden abstinence from it, after its prolonged administration. Dr. Levinstein has illustrated his remarks with numerous cases observed by him in his capacity as Director of the Maison de Santé at Schönberg, Berlin; and describes, as well, the morbid effects wrought on the tissues by excessive doses of the drug administered experimentally, for longer or shorter periods, to pigeons, &c. From several cases which have come within our own knowledge, we can say that the author's statements are truthful and not exaggerated; and though examples such as those alluded to, or many of those recorded here, are happily out of the common, yet their possible occurrence may lead us to bear in mind and appreciate their importance, and thus to guard ourselves against the incautious administration or recommendation of this drug, which, like alcohol, so potent for good in its use, is at the same time so equally potent for evil in its abuse. To those whose position or circumstances bring them into contact with such cases, we can fairly recommend the perusal of Dr. Levinstein's work, which contains a great deal of information on the subject.

Dr. Harrer, in the translation before us, has brought the work within the reach of English readers, and the eminent firm of publishers from whom it issues have got up the book in very neat style.

On the Uses of Wines in Health and Disease. By FRANCIS E. ANSTIE, M.D., F.R.C.P. Macmillan & Co. 1877.

MESSRS. MACMILLAN & CO. have done a useful service to scientific therapeutics by reprinting, in a convenient form, those valuable papers by the late Dr. Anstie. Many of our readers have long since read with pleasure Dr. Anstie's papers on the Uses of Wines, in *The Practitioner* which he so ably edited.

Dr. Anstie divides his subject into two principal parts:—I. On the Place of Wine in the Diet of Ordinary Life; II. On the Use of Wines in Disease. The latter he subdivides into two sections:—1. Wines in Acute Disease; 2. Wines in Chronic Disease.

The author disclaims all intention to discuss the moral aspects of the uses of alcoholic drinks, and passes *over* teetotalism with the remark, "We shall take it as established, both by wide-spread custom and by the most recent physiological research, that alcohol, as such, has its legitimate place in the sustentation both of the healthy and diseased organism."

As a good thing can scarcely be said too often, especially when it is calculated to promote temperate habits, we may quote the following:—"That the strong wines, including port, sherry, Madeira, Marsala, and all that genus, contain on an average something like 17 per cent. of absolute alcohol (the strongest ranging as high as 23 per cent. or more), and that the light wines, including claret, Burgundy, champagne, Rhine and Moselle wines, Hungarian wines, &c., average between 10 and 11 per cent. of absolute alcohol (the lightest champagnes not containing more than 5 or 6 per cent.). Comparing wines with beers, we may note that the purest sorts of beer contain about 2 per cent. of absolute alcohol; ordinary table-ale, as drunk in most middle-class households, about 3 per cent.; ordinary porter, between 3 and 4 per cent.; stout, from 5 to 6 per cent.; while the strongest kinds of malt liquors range through various degrees up to even 10 per cent.; and a common strength for good bottled ale or stout is about 7 per cent. of absolute alcohol. On the other hand, good brandies and rum [we may add whiskey] average between 45 and 50 per cent." We recommend our junior readers to fix those facts in their minds as valuable and ready standards to guide them in advising their patients as to the dietetic use of alcohol. Thus a person "needing generous living," who takes three or four glasses of port wine a day, takes about one and a-half ounces of absolute alcohol, or as much as would be contained

in five large tumblers of table-beer, or two-thirds of a bottle of generous Rhine wine. A bottle of port, estimated according to alcoholic strength, is equal to half a bottle of brandy, two bottles of claret or hock, a gallon of table-beer or of light champagne. Four glasses—equal to eight ounces of port or sherry—is, according to Dr. Anstie (and in this we agree with him), about the largest quantity that can be taken by a person "leading a not very active life" without injury. It is evident that when this limit is reached a "glass or two" more will lead to injurious excess. Dr. Anstie considers that "adherence to one drink, and generally to one wine, is almost a necessity of health"—of course, for persons who habitually consume alcoholic drinks as a portion of their diet. The multiplication of alcoholic drinks is strongly condemned by our author, and thus the old proverb, "never mix your liquors," is supported. Dr. Anstie's reason for not mixing his liquors is a scientific one—namely, that he knows the strength of his habitual drink, and probably an empirical knowledge of the same fact led to the old maxim. Dr. Anstie recommends a bottle of Bordeaux or Rhine wine as the best drink for persons "who wish to adopt the plan of drinking all their alcohol in the shape of one wine." This he advisedly recommends to "the hard-working student, politician, professional man, or busy merchant." Dr. Anstie's views with regard to the relation between the amount of sugar contained in wine and its power to promote gout, are those usually received by the profession. The injurious effects of acid wines, Dr. Anstie thinks, are exaggerated, especially when it is considered that many of the so-called acid wines are less acid than sherry, the acidity of the latter being hidden by its excess of sugar. An excess of tannic acid is much condemned, except for particular medicinal purposes. Of the salts contained in wine, the tartrates of potash and lime are considered to be the only ones of real value. The quackery of recommending wines containing phosphates as nervine tonics is strongly and justly condemned by the author.

With reference to the use of wines as part of the diet of delicate children, Dr. Anstie recommends small quantities of the stronger wines, especially in those where a tendency to wasting is very marked, or where there is a tendency to contracting catarrhal affections by slight exposure to cold. The wine should be used on principles almost the reverse of those followed by adults. In the latter considerable quantities of light wines should be used with the meals; while in young children small quantities of strong wine

should be administered in medicinal doses at regular intervals. Dr. Anstie recommends for children a teaspoonful of sherry made up to a tablespoonful with some bitter infusion, to be administered three times a day. Thus administered there is no chance of corrupting the child's taste and educating him to be a drunkard, as some well-meaning, but ignorant, teetotallers imagine to be the result of the medical prescription of wine for children. The author recommends the stronger wines for the aged, and especially those rich in ethers. We have dealt thus at length on the dietetic uses of wines, as erroneous views with respect to the habitual use of wine are, we believe, more common than with respect to its use in disease. We believe light wines are not consumed by the public in nearly as great quantity as they should be. To quote another authority on the use of wine (Dr. Druitt):—Light wines "are a marvellous addition to our enjoyment whilst well, and to our means of getting well if ill; that they tend to promote health, and diminish sick headaches and gout; to give variety, grace, and refinement to our entertainments; and make life probably longer—certainly better worth having."^a

With respect to the use of wine in disease, the question is treated under the heads of acute and chronic diseases. In most acute febrile diseases, "alcoholic liquids are to be prescribed primarily, if not only, for the sake of the alcohol which they contain." This is especially the case when the febrile temperature runs high persistently, and in such cases pure spirit sufficiently diluted will answer its purpose remarkably well. "The ethereal constituents of wine have a special value in the latter stages of some febrile diseases with great exhaustion of the heart." "On the other hand, a low alcoholic strength of wine together with the presence of carbonic acid, as in the finer effervescing wines, is particularly useful in cases where the violence of the fever, the nervous prostration, and the derangement of digestion, are out of proportion to the gravity of the case."

In catarrhal inflammations, with febrile symptoms, weak effervescing wines are recommended. This recommendation is, of course, to be modified in accordance with the age of our patient. Large quantities of spirit are recommended in cases of depression of the heart from excessive hæmorrhage. For use in chronic diseases the stronger wines are usually to be employed; but for the particular application of each kind of wine to each diseased condition, we must refer our readers to the excellent little work itself.

T. W. G.

^a Report on Cheap Wines. By Robert Druitt. London: Renshaw. 1865.

Note-book for Students beginning the Study of Disease at the Bed-side. By JAMES LITTLE, M.D., Univ. Edin.; M.R.I.A., &c. Second Edition. Dublin: Fannin & Co. 1878. Royal 32mo. Pp. 175.

THE first edition of this note-book, published in 1872, was exhausted in a few months, and from a careful perusal of the present revised edition we have little doubt that it also will soon be out of print. Of very convenient size, this little book is characterised as well by the judicious arrangement of its subject-matter as by the clearness of its diction and the conciseness of its style.

The "schema" is to present to the reader, on opposite pages, the condition of the different systems of the body in health and in disease respectively. This plan cannot fail to impress the leading facts of clinical investigation on the student's memory. There are many illustrations and diagrams, and at the end the Dispensary Formulary of the Adelaide Hospital is given, while an Appendix contains an illustrated description of Professor Emerson Reynolds' ready method of estimating the urea in urine by means of sodic hypobromite.

It is a pity, we think, that the value of the "Note-book" is not further enhanced by a table of contents at the beginning, or by an index at the end. We have no hesitation in strongly recommending the little work to all students of medicine who are working at the bed-side of the sick.

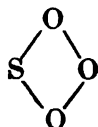
Handbook of Modern Chemistry: Inorganic and Organic. By CHARLES MEYMOTT TIDY, M.B., F.C.S. London: J. and A. Churchill. 1878. 8vo. Pp. 780.

THIS work, which is specially intended for students, is well worthy of the industrious author whose co-partnership in the production of a large work on Medical Jurisprudence we have lately done full justice to in these pages. Dr. Tidy's work is a kind of highly-condensed cyclopædia of chemistry. Most of the inorganic and organic compounds of the least importance are described. Not only are the properties of the elements and their combinations with each other described, but the methods of testing for their presence are indicated. In fact, the work contains within itself the materials of a small manual of qualitative analysis. On the whole, the style of the work is by no means inviting; it is worthy of Dryadust

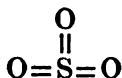
himself. It is only the student anxious to get placed before him in the smallest space as much information as he possibly can who will appreciate the terseness of Dr. Tidy's style. The book is crammed full of facts, figures, and formulæ—empirical, molecular, and constitutional. We doubt if any other chemical work containing so large an amount of information could be procured.

The progress of discovery is very fairly recorded, and the liquefaction of oxygen, effected at the very end of 1877, is referred to. There are not many omissions of any importance. We would have expected in a book so large to find some reference to the sulphinic acids and the sulphines. A few such inaccuracies as that fluorine combines with all the elements save oxygen occurs: there is no compound of fluorine with carbon.

With respect to the valency of the elements, Dr. Tidy classes sulphur and selenium as hexads—no doubt from their power to combine with three atoms of oxygen; but if we accept the postulate that the molecular volume of compounds composed of a single molecule is equal to that of H_2 , we can hardly regard sulphur, selenium, and tellurium as hexads. Sulphur trioxide is more likely to have the constitutional formula,



than that of



We cordially recommend Dr. Tidy's work, and we have no doubt but that a large demand for it will show its appreciation by the students of chemistry.

Mechanical Dentistry. By CHARLES HUNTER, Mechanical Dentist.
London: Crosby, Lockwood, & Co. 1878. 8vo. Pp. 268.

A PRACTICAL treatise on the construction of artificial dentures has long been needed, and, as the result of a careful perusal of Mr. Hunter's work on "*Mechanical Dentistry*," we have no hesitation in saying that it very fairly meets the want which has been felt by the dental profession for an authoritative treatise on the subject.

Written by one who has an experience of nearly twenty years as a mechanical dentist, this book contains—besides the results of that experience—much that has been derived from the practical knowledge of others, to whom the author modestly acknowledges his indebtedness. Many useful and practical hints are scattered here and there throughout the work, while its value as a text-book is enhanced by numerous illustrations, many of which are from wood-blocks belonging to the well-known firm of Claudius Ash and Sons, and by useful formulæ, tables, and receipts for gold plate, clasps, solders, &c.

We can strongly recommend Mr. Hunter's treatise to all students preparing for the profession of dentistry, as well as to every mechanical dentist.

Transactions of the International Medical Congress of Philadelphia, 1876. Edited for the Congress by JOHN ASHHURST, Jun., A.M., M.D., &c. Philadelphia. 1877. Pp. 1153.

WE have been favoured with a copy of this important work, which truly forms a fitting memorial of the great and successful meeting it so ably records. The proceedings of the Centennial Congress of Philadelphia not only marked an epoch in American medicine, but also developed an international element which has gone far towards knitting together the professions of the old and new worlds. Most of the addresses and papers collected in this volume have been already, in one way or another, before the profession, and therefore call for no extended notice at our hands. But it would be unjust not to bear a further tribute to the value of the former. They were delivered by representative American physicians and surgeons on topics illustrative of the progress and present condition of the different branches of medicine in the United States, and thus form a most interesting medical history of the country.

These addresses, which, in addition to the graceful one of welcome of the distinguished President, Prof. Gross, are by such men as Austin Flint (Medicine); Bowditch (Hygiene); Wormley (Medical Chemistry); Eve (Surgery); Toner (Medical Biography); Parvia (Obstetrics); Gray (Mental Hygiene); Yandell (American Medical Literature); Davis, and Woodward, occupy the first 300 pages of the volume. The papers read in the meetings of the nine different sections, and by them recommended for publication, with, in many instances, abstracts of the discussions which ensued, occupy the bulk

of the remainder of the work. There are also lists of the various officers of the Congress and of the delegates and invited members who took part in it, and an excellent index. The thanks of the Congress are eminently due to the editor, Dr. John Ashhurst, jun., for the way he has completed his most laborious duty, the difficulties of which, we well understand, can scarcely be appreciated. He and all the members of the Centennial Medical Commission have every reason to be proud of this eminently historical and valuable work.

WORKS ON DISEASES OF THE SKIN.

1. *The Hair in Health and Disease.* Partly from Notes by the late G. NAYLER, F.R.C.S.E. By E. W. COTTLE, F.R.C.S.E. London: J. & A. Churchill. 1877. Pp. 149.

It appears that the late Mr. Nayler had collected materials for a special work on the hair, and Mr. Cottle, who was his fellow-worker and assistant, felt it incumbent on him to complete the unfinished undertaking. The volume does not repay perusal, and it contains little that has not been said and re-said by others. We confess to not being able to place much confidence in the statements of an author who, speaking of the occurrence of pediculi on the skin, naively remarks that "the spontaneous generation of these creatures is a point on which there exists a difference of opinion" (p. 119).

At p. 82 reference is made to a local remedy for ringworm of the head, of which we had not previously heard—viz., the sulpho-carbodate of barium, employed as an ointment, 10–20 grs. to ʒi of lard.

2. *On Ringworm and its Management.* By TILBURY FOX, M.D. London: H. Renshaw. 1878. Pp. 62.

WE can commend this little book as the best practical guide we know of to the diagnosis and management of that pest of practice—ringworm. It is essentially a reprint from *The Lancet*, and enters fully and satisfactorily into the details of treatment. We notice that Dr. Fox, writing in 1878, insists much more strongly on the employment of epilation than he did in 1873 ("Skin Diseases," 3rd Edition). Additional experience has also led him to modify a statement which is of some clinical importance. In his large textbook (3rd edit., p. 439) he states—"It [ordinary ringworm of the

scalp] is rarely seen except in children—in fact I have, I believe, never seen it in the adult.” In the pamphlet under notice he states (p. 9), “It [ringworm of the head] is said not to occur in the adult, but this is a mistake—I have seen even severe cases in adults of from 21 to 40 years of age.”

3. *Atlas of Skin Diseases*. By LOUIS A. DUHRING, M.D. Part III. Philadelphia: Lippincott & Co. 1878.

THE Plates in this Part represent Purpura simplex, Eczema squamosum, and two forms of Syphilide—viz., the erythematous, and the papulo-pustular varieties. For truthfulness of detail and vividness of delineation we do not think that the drawings can be surpassed, and we congratulate the publishers on the admirable style in which this valuable work is brought out. The varied tints and forms of the roseolar syphilide are particularly clearly demonstrated, and the descriptive letterpress accompanying the plates is excellent.

4. *Archives of Dermatology: a Quarterly Journal of Skin and Venereal Diseases*. L. DUNCAN BULKLEY, M.D., Editor. New York. July, 1877. January, 1878.

THIS Journal well sustains its high character, and the excellent and copious digests of literature continue to afford a storehouse of facts and references by which the reader is enabled with little labour to keep himself abreast of all that is worth knowing in dermatology and syphilitic affections.

We have also to acknowledge a number of reprints of papers on cutaneous subjects by Drs. Duncan Bulkley, A. R. Robinson, R. Campbell, and L. P. Yandell, which evince the growing interest felt in America in dermatology. Dr. Robinson's papers on Pompholyx (Dysidrosis), and on Sycosis, are freely illustrated with drawings of microscopical preparations, and form an interesting contribution to our knowledge.

5. *Essays on the Treatment of Skin Diseases*.—No. IV. *On the Treatment of Psoriasis by an Ointment of Chrysophanic Acid*. By B. SQUIRE, M.B. London: J. & A. Churchill. 1878.

MR. SQUIRE deserves the thanks of the profession for the trouble he has taken to introduce into notice a therapeutical agent whose value has now been attested by the concurrent testimony of a

number of independent observers. We strongly commend Mr. Squire's pamphlet to the study of practitioners, and, by way of inducement, may remind them of the emphatic statement recently made by Dr. Neumann, of Vienna, that the therapeutics of skin-diseases have for the last ten years been enriched by but few remedies which have been crowned by so eminent a success as the one in question.

In a new edition Mr. Squire might appropriately make the title more comprehensive, for the use of the acid is by no means confined to the treatment of psoriasis, as indeed he himself shows. The pamphlet is really an essay on the use of chrysophanic acid in diseases of the skin.

Cyclopædia of the Practice of Medicine. Edited by VON ZIEMSEN. Vol. XVII. London: Sampson Low & Co. 8vo. Pp. 967.

THIS volume, which fully maintains the reputation of its predecessors for accurate and copious information, deals with General Anomalies of Nutrition and Poisons. Under the former heading are discussed Hæmophilia, Scurvy, and Purpura Hæmorrhagica. The subject of Poisons is discussed in such an exhaustive manner as to render the work as useful to the chemist and medical jurist as to the physician or surgeon.

The Public Health (Ireland) Act, 1878, with Schedules, &c. Dublin: John Falconer. 1878. 8vo. Pp. 214.

ALTHOUGH, of course, not exclusively intended for the use of the District Medical Officers of Health throughout Ireland, this reprint of the "Public Health Act, 1878," cannot fail to be of use to those hardworked yet efficient servants of the State. The "Introduction" contains an excellent epitome of the provisions of the Act; while a well-digested Index is appended, by means of which the reader can at once gain a clue as to the portion of the Act he wishes to consult on any given sanitary subject. We are sorry that the references in the Index are to the pages of the present edition rather than to the sections of the Act itself, because the latter arrangement, if adopted, would have made the reader more familiar with the Act and its sections.

We comment at such length on the Act itself in another part of the present number of this Journal that it is unnecessary for us to

enter into details in noticing Mr. Falconer's admirable reprint of what is now the Sanitary Code for Ireland. We have to congratulate him on the eminently practical and useful edition of the Act which he has been able to publish within six weeks of the passing of the measure.

Illustrations of Clinical Surgery. By JONATHAN HUTCHINSON, F.R.C.S. London: J. and A. Churchill.

The 12th fasciculus is devoted to the tumours which occur in childhood—meningoceles, encephaloceles, and fibro-cystic of various forms. The plates admirably illustrate the diseases mentioned.

On Tracheotomy, especially in relation to Diseases of the Trachea and Larynx. By W. PUGIN THORNTON. Pp. 68. London: J. and A. Churchill.

THE author of this book, as surgeon to one of the hospitals for throat diseases, may fairly claim a hearing for what he has to say upon the subject of tracheotomy. He does not attempt to discuss the difficult question as to whether it is justifiable in any particular diseases, but, assuming that such a procedure is accepted, he tells a good deal as to how it is to be done, and the dangers and the precautions to which the surgeon must have regard. There are many hints which will be found of use to the operator; but, as with others who aim at being accepted as authorities, the author is at times fanciful in his recommendations. Such a thing as a "special pillow" measured to the half inch, and of different sizes for adults, young people, and children, is to our minds quite useless. There would be no end to the number of pillows in the surgeon's room if Mr. Thornton's plan were logically followed. There is already too much lumber there to have it added to.

The notes upon tracheal tubes give a tolerably good idea of the progress that has been made in them. That progress is not much. Durham's, which is in some respects excellent, has its disadvantages, and is too expensive; Fuller's, which continues to be much used, is on the whole as good as any; but there is still great need for a tube at once cheap, roomy, durable and safe.

Mr. Thornton objects to the use of chloroform or any anæsthetic, because the patient is unable to cough up the blood that may pass into the trachea. We think the advantages are too great to be

neglected. With a strong child the difficulty of the operation may be greatly increased by violent struggling, in spite of the restraint of assistants, and there is less likelihood of hæmorrhage when the operation is thus done, because the surgeon can be more deliberate in his work.

A series of cases, in which the operation was done for various diseased states of the throat, gives much interesting information. The book is, in addition, well illustrated, and has some photographs of *post mortem* specimens of different conditions of the air passages.

An Atlas of Human Anatomy. By RICKMAN J. GODLEE, M.S., F.R.C.S. London: J. & A. Churchill. 1878.

WE have received the additional Parts III., IV., and V. of this Atlas, each of the Parts consisting of four plates. The Dissection of the Head and Neck extends to the fourteenth plate. Four plates illustrate the Anatomy of the Abdomen, and the remainder are devoted to Inguinal and Femoral Herniæ.

The illustrations of the head and neck are generally good, though sometimes a little fanciful; but in the abdomen Mr. Godlee is certainly not happy—the drawings are indistinct, and in some places not even correct, as is seen in the course attributed by the author to the External Iliac and Femoral Arteries in Plate 18. Hernia has not succeeded much better. We cannot but think that a little more of the artist's pencil would not be wasted on the drawings. The price continues at the same high figure.

On some Forms of Extemporaneous Conveyances for Sick and Wounded in Peace and War. By SURGEON-MAJOR PORTER, Assistant-Professor of Military Surgery, Army Medical School, Netley. London: Harrison and Sons.

THE necessity of carrying our wounded in war has at last been recognised. It is not so very long since hostile armies depended upon the chances of locality for the relief of their injured men. At the battle of the Alma there was not a single ambulance wagon in the English army, and even now the supply is by no means equal to the probable need. The destructive nature of modern weapons, and the masses of men engaged in conflict on each side, render it almost impossible to have ambulances at all adequate to the

requirements of war. The utmost we can hope to have is a well disciplined and intelligent body of men, able to avail themselves of whatever facilities may exist in the country to supplement the aid now regularly provided in every army. Mr. Porter's paper was read before the Order of St. John of Jerusalem, and is intended to show in how many forms help lies round about us. He devotes attention specially to (1) means for assisting sick and wounded by supporting them with the hands of bearers or some appliance; (2) the construction of hand litters; (3) the adaptation of general service wagons and country carts, of railway carriages or vans, of river or sea-going vessels; and (4) the construction of horse-litters. The suggestions given are very interesting and useful, and will be of great advantage to the civil, as well as to the military, surgeon.

PELLETIERINE, THE ALKALOID OF POMEGRANATE RIND.

TANRET, pharmacist, of Troyes, sends an account of this new alkaloid to the *Bulletin Général de Thérapeutique*, May 30, 1878. It is known that the fresh pomegranate rind possesses strong anthelmintic properties, while the same when dried is nearly or quite inert. The active principle must, therefore, be very alterable. Up to the present this has not been discovered, but Tanret now states that he has been able to obtain the alkaloid from both the root and stalk bark, as found in commerce, and he proposes to name it in honour of Pelletier, the chief investigator into the properties of alkaloids. . . . Pelletierine has an oleaginous consistency, and when obtained by evaporation in vacuo of the ethereal or chloroformic solutions is colourless. When obtained by distillation in the air, it has a light yellow colour. It is soluble in water, alcohol, ether, and, above all, in chloroform. Its salts are very deliquescent. Pelletierine is not poisonous. Tanret took fourteen centigrammes of the sulphate. His pulse fell to twenty per minute within three-quarters of an hour; he experienced vertigo, lasting some ten minutes—not severe enough, however, to prevent his writing. No change of temperature was observed. Whether the alkaloid of pomegranate rind is as efficacious an anthelmintic as the latter itself remains to be seen, since Tanret has made no experiments in this direction. The process by which pelletierine is made is an easy one, and it might be advantageous to try the effect of a remedy which may probably prove more easily administered and more agreeable than the rind of pomegranate.—*Philadelphia Med. Times*.

PART III.

HALF-YEARLY REPORTS.

REPORT ON MIDWIFERY AND DISEASES OF WOMEN.

By ARTHUR VERNON MACAN, B.A., M.B., M.Ch., M.A.O.,
Univ. Dubl.; F.K.Q.C.P.; Gynæcologist to the City of Dublin
Hospital; Ex-Assistant Physician to the Rotunda Lying-in
Hospital, Dublin; Joint Lecturer on Midwifery in the Carmichael College of Medicine and Surgery.

[Continued from page 226].

INTRA-UTERINE INJECTIONS, IRRIGATION, AND DRAINAGE OF THE PUERPERAL UTERUS.

The treatment of puerperal fever by intra-uterine antiseptic injections is a direct logical consequence of the belief in its septic origin; and such injections will become more and more common as the septic theory of the origin of puerperal fever becomes more universally recognised. They have long been extensively used on the Continent, where they are looked on as part of the usual routine treatment. Indeed, Fritsch says, "It is quite irrational to attempt to treat puerperal affections without washing out the vagina. If the child is born dead and putrid, the lochia are stinking, or if fever is present, our first care must be to wash out the uterus" ("Puerperal Fever and its Local Treatment." H. Fritsch. *Volkmann's Sam.*, No. 107, p. 14). For this purpose he uses a specially constructed catheter, which is connected to an irrigator which contains at least a litre of a 2 per cent. solution of carbolic acid, at a temperature of 88°. The number of injections must of course be determined by the height of the fever, but he has found that three or four are generally sufficient. The vessel which contains the carbolic acid solution should never be held more than one and a half feet above the level of the bed; if higher than this the force of the stream is a source of danger. The injections should be continued till the patient is free from fever. Fritsch tried drainage in two cases, but afterwards abandoned it. Prophylactic

injections should be made in all cases of tedious labour, and before and after any obstetric operation. We must see that the fluid injected has a free escape, which can be insured by pressing the catheter against the side of the cervix, or by passing the finger into the cervix and pressing forcibly on one or other side. The injections do not cause pain or hæmorrhage, and are entirely free from danger. His conclusions are—

1. The vagina of every puerperal woman should be cleared of the lochia.

2. After intra-uterine operations, putrid children, and foul lochia, or as soon as there is any fever, the uterus itself should be washed out.

3. We must not give up hope even though most violent symptoms of septicæmia are present.

Schroeder, in a discussion on a paper by Fritsch, on this subject, stated that in Berlin every woman who was delivered had her own injection tube, which was made of glass, and which was broken when she left the hospital (*Sammlung Naturforsch. zu Hamburg*. 1876. *Archiv für Gynaek.* X. 387).

A number of papers have appeared quite lately on this subject. Thus Langenbuch contributes a paper on "Drainage of the Puerperal Uterus" to Vol. II. of the *Berlin. Zeitschrift f. Geb. u. Gyn.*, in which he claims to have been the first who used intra-uterine injections of carbolic acid, as early as the year 1872. It occurred to him also that intra-uterine drainage would be a powerful adjuvant or substitute for the injections; and having given it a fair trial, he has come to the conclusion "that intra-uterine drainage—while neither injuring nor irritating the uterus—is able rapidly to allay, or aid in allaying, an inflammatory affection of that organ; that it effectively promotes the discharge of the lochia and putrid contents of the uterus, and thereby in itself contributes an important factor to recovery, and thus facilitates intra-uterine injections and the return of the antiseptic fluid."

In the first part of Vol. II. of the same publication, Dr. W. Schülein gives the results of the local antiseptic treatment as carried out in Prof. Schroeder's clinique in Berlin. As the patients are used for the purpose of instructing both students and midwives, Prof. Schroeder orders that every woman who is delivered should have an intra-uterine and vaginal injection consisting of a quart of a 3 per cent. solution of carbolic acid. These injections are repeated frequently in cases where the liq. amnii or the vaginal

discharge are offensive, or when the labour is unusually tedious or difficult—as from contracted pelvis, placenta prævia, face presentation, &c. In bad cases the solution is used as strong as 5 per cent. The injections are repeated during the puerperal state, as soon as any indications of infection show themselves—such as tenderness over the uterus, offensiveness or total suppression of the lochia, or a rise in the temperature to over 101·5°.

The total number of women delivered was 287, and 201 of these were injected merely as a prophylactic measure. The mortality amounted to 2·4 per cent.; but of the seven fatal cases, one died from *post partum* hæmorrhage after placenta prævia; two from rupture of the uterus; two from eclampsia and œdema pulmonum; one of abscess of the liver; and one after the Cæsarean section—so that the mortality from septic infection was absolutely nil. His conclusions are—

1. “That intra-uterine injections, if administered skilfully, are quite free from danger.

“2. They lessen very materially the mortality from puerperal infection.

“3. They are the most reliable means we have for preventing serious puerperal affections.

“4. The temperature often falls very considerably within a few hours after their administration.”

In the same volume is a paper by Dr. Carl Richter, “On Irrigation of the Uterine Cavity with Carbolic Acid Solution, and the Salicylic Acid Treatment during the Puerperal State.” Intra-uterine injections are made use of by him under the same indications as Dr. Schülein puts forward. He uses a large glass tube having an opening at the end, and furnished with a pelvic curve, in order the more readily to enter the uterus.

Richter, however, by no means confines his treatment to intra-uterine injections, but supplements them by applying ice to the abdomen in all inflammatory conditions of the uterus and vagina. He also resorts to local depletion—especially by leeches applied to the hypogastrium—at the very commencement of the affection; while internally he administers salicylate of soda in doses of 30 grs., morning and evening, or in 15-grain doses three or four times a day. He also used a 10 per cent. solution of carbolic acid as a local application to puerperal wounds.

Intra-uterine drainage, first carried out by Dr. Langenbuch, is warmly recommended by Dr. Schede in cases of puerperal septica-

mia (*Berlin. klin. Wochenschr.*, 1877, Nos. 23 and 24). He leaves the drainage tube permanently within the uterus, and makes frequent intra-uterine injections as well. The tube does not seem by its presence to set up any irritation within the uterus.

Dr. A. Schücking goes even a step further and recommends the constant irrigation of the interior of the uterus with a 10 per cent. solution of sulphate of soda with 5 per cent. of glycerine (*Berlin. klin. Wochenschr.*, 1877, No. 26), and has devised an ingenious method of carrying out this idea. This consists in a metal catheter, along one side of which is attached a short perforated pipe. The catheter is wound round and round with carbolic gauze in such a manner that the vaginal portion becomes much larger than the intra-uterine. It is then connected with the tube of an irrigator, which allows the solution of sulphate of soda and glycerine to percolate slowly through it. The catheter is then passed up into the uterus and left there, with the solution passing slowly through it, for twelve hours. It is then withdrawn, and the gauze changed, when it is again introduced. During the interval the vulvæ are covered with carbolised dressing. If puerperal fever be already present the uterus must first be washed out with a 5 per cent. solution of carbolic acid, and then irrigation commenced with the soda solution.

Dr. Münster has carried out prophylactic intra-uterine injections of a solution of salicylic acid—1–2 : 1,000—in the clinique at Königsberg (*Zeitschrift f. Geb. u. Gyn.*, Vol. I., Part 2) with the happiest results; and Prof. Leopold, of Leipsic, in giving an abstract of this paper (*Centralblatt f. Gyn.*, 1877, p. 183), speaks in the highest terms of this prophylactic treatment in all cases where the labour is difficult or the discharge is purulent. The injections should, however, be commenced immediately after delivery, and repeated two to four times a day for several days.

This antiseptic prophylactic treatment of puerperal women has also been carried out with satisfaction by Zweifel, of Erlangen ("Die Prophylaxie des Puerperalfieber," *Berl. klin. Wochenschr.*, 1878, No. 1), and by Fehling, of Stuttgart (*Med. Corr. Bl. des Würtemb. ärztlich. Ver.*, 1877, Nov. 18). The latter holds that in cases of tedious labour the vagina should be washed out every hour or two. Puerperal wounds should be covered twice a day with a powder composed of salicylic acid and starch—1 : 5. If fever arise the uterus must be irrigated once or twice a day, by the doctor himself.

Until quite lately these intra-uterine injections of a 3 per cent. solution of carbolic acid have been looked on in Germany as quite harmless; but Küstner has lately published two cases (*Centralb. f. Gyn.*, July 6, 1878) in which very serious symptoms came on while intra-uterine injections were being made. In the first case the injection of a 5 per cent. solution had hardly begun when the whole appearance of the patient suddenly changed—her face became quite livid and her lips quite blue. The pupils were contracted and there was well-marked internal strabismus. The patient became at once unconscious; respiration 40, pulse 148 and scarcely perceptible. The head was thrown backwards, and there was twitching of the muscles of the face and fixation of the jaws accompanied by convulsive movements of the arms. It was fifteen minutes before the patient seemed out of danger, and an hour before she regained consciousness. Of course when these symptoms showed themselves the injection tube was at once withdrawn, and shortly after there was a considerable flow of blood from the vagina, which lasted about an hour. The patient finally died, but there was not the faintest trace of any wound having been inflicted on the uterus by the injection tube.

In the second case, similar, but very much less severe, symptoms occurred, and the patient made a rapid recovery. In looking back on the cases, Küstner was struck by the great resemblance the symptoms bore to those of acute carbolic acid poisoning—the intense dyspnoea, the small, hardly perceptible pulse, the loss of consciousness, and, in the first case, the clonic muscular spasms. From the occurrence of hæmorrhage in both cases he concludes that some vessel was opened and that the carbolic acid solution thus entered the circulation. He, finally, guards himself against the idea that in publishing these cases he wishes to bring any discredit on intra-uterine injections, which are, he believes, the most valuable means we have for the treatment of puerperal affections.

In the next number of the *Centralblatt* (July 20, 1878), Fritsch publishes three cases which greatly resemble those given by Küstner. In one of these, however, a solution of salicylic acid was used, and the patient was delirious for the whole night. In all his cases there had been *post partum* hæmorrhage, and hæmorrhage came on in each after the injection. He concludes that the thrombus closing some vein was washed or torn away by the catheter, and that the solution then entered the vein. The symptoms in the second case, where salicylic acid was used, hardly differed from those in the

cases where carbolic acid was used. Hence Fritsch thinks the symptoms are not especially those of poisoning by carbolic acid, but are what might be produced by the sudden entry of almost any drug directly into the circulation. He, finally, disproves the possibility that the symptoms might be due to embolism or the passage of the fluid along the tubes and its absorption by the peritoneum. Finally, in order to guard as far as possible against the occurrence of such an accident, he recommends the injections to be made at a very low pressure—the return of the fluid from the uterus being always controlled by the finger at the os—and that the operator should never take his eyes off the face of the patient.

Dr. Robert Herdegen gives two cases in the *Centralb. f. Gyn.*, Aug. 3, 1878, which closely resemble Dr. Küstner's, but he does not agree with him that the symptoms are due to acute carbolic acid poisoning, from the sudden entrance of the injection into the circulation of the patient. In his two cases he can exclude with certainty such possible causes as injury to the uterus or entry of the injection into the peritoneum through the tubes. He cannot with the same certainty exclude the possible entrance of air into the veins. He is, nevertheless, of opinion that the symptoms are directly due to the injection itself and not to the disinfectant used, though it is at present impossible to say whether they are the result of embolism, or of the entrance of the fluid into the patient's veins, or of some still unthought-of cause. Persons react very differently under various treatments, and similar symptoms have been known to follow the passage of the sound, the entrance of a leech into the uterus, and the use of various intra-uterine medications. Until the cause is further investigated he thinks the most plausible explanation of the cases is that proposed by Richter—viz., that they are hystero-epileptiform convulsions, due to irritation of the inner surface of the uterus.

Winckel, in the new edition of his book on "The Pathology and Treatment of the Puerperal State" ("Die Pathologie und Therapie des Wochenbettes," Berlin, Hirschwald, 1878, 3rd ed.), holds that intra-uterine injections are free from danger if administered with care. They should be lukewarm and given by irrigation (Hegar's funnel). As prophylactic measures in order to avoid puerperal fever, he recommends washing the hands, &c., in a 5 per cent. solution of carbolic acid before making any examination of a lying-in woman. If puerperal fever has once broken out in any lying-in hospital, he thinks that the support of the perinæum, the

inspection of the genitals *post partum*, and the insertion of sutures into the perinæum when ruptured, should all be done under the carbolic spray. After all operations the vagina and uterus should be washed out with a 5 per cent. solution of carbolic acid, and when the lochia are offensive the cavity of the uterus should be drained. The permanent irrigation of the uterus, as proposed by Schücking, has, he thinks, a good chance of being introduced into lying-in hospitals (*Centralb.*, 1878, p. 200).

JABORANDI AND PILOCARPINE IN PUERPERAL ALBUMINURIA
AND PUERPERAL ECLAMPSIA, AND ON THE OXYTIC EFFECT
OF PILOCARPINE.

In the *Journal de Méd. et de Chirurg. prat.*, XLVIII., p. 371, Dr. Langlet, of Rheims, gives a case of puerperal albuminuria in the third month of pregnancy, with prodromal symptoms of eclampsia, which was most successfully treated by 3·0 grammes of jaborandi in infusion every day for sixteen days. The woman recovered perfectly, and was safely delivered at the full time.

In the *Centralb. f. Gyn.*, July 20, 1878, Fehling publishes two cases of eclampsia treated successfully with jaborandi. In the first case bleeding and chloroform had both been used before delivery, and also the method of packing recommended by Jacquet. But the patient became worse and not better after delivery—the pulse being so quick and weak that recourse was had to the subcutaneous injection of camphor. In fact Fehling had quite given up the case when the idea of giving jaborandi occurred to him. The patient got 2·5 grammes of jaborandi in infusion, which caused copious perspiration in about an hour. The jaborandi was repeated in a few hours with a similar result, and the patient gradually awoke from the coma. There was no return of the convulsions, and the patient made a very fair recovery.

The second patient was a primipara with moderately marked pelvis equibilter justo minor, who, after being twenty-four hours in labour, was, without any premonitory symptoms, attacked with eclampsia. Chloroform was at once administered, notwithstanding which a second attack occurred in half an hour. In an hour and a half the os was sufficiently enlarged to permit of the application of the forceps, and the child was delivered without any difficulty. However, half an hour after delivery she had another fit, and four, six, and eight hours afterwards she had further attacks. An.

infusion of jaborandi was now administered, which was followed by profuse perspiration, and the patient had no other attack.

Fehling agrees with Spiegelberg (*Lehrbuch d. Geburtshilfe*, 1878, p. 564) that the proper treatment for convulsions is bleeding and chloroform—delivery being accomplished the very moment it is possible to do so without injury to the mother. It is in cases where these fail, or when from any cause they are one or all inadmissible, that Fehling recommends the use of jaborandi or its active principle, pilocarpine.

According to Dr. Bidder the immediate cause of any attack of convulsions, whether epileptic or eclamptic, is a sudden cutting off of the supply of blood to the brain. The easiest way of explaining this sudden cutting off of the supply is by the occurrence of spasms of the vessels through which the supply comes. In other words, the immediate cause of convulsions is acute ischæmia of the brain, resulting from spasms of the vessels which supply it with blood. This agrees with the well-known fact that all the medicines which have been found serviceable in treating convulsions have this one thing in common—viz., the power of allaying spasm and relaxing the vessels.

Now, through the investigations of Kahler, Leyden, Sommerbrodt, and others, it is well known that the effect of pilocarpine is to lower the arterial tension and produce dilatation of the vessels; hence Bidder was at once led to try its effect in cases of eclampsia, and he has published two cases that were thus treated in the *Centralblatt f. Gyn.* of July 20, 1878. The first patient was attacked suddenly in the eighth month with convulsions, and did not regain her consciousness even after the first attack. The urine was very dark and contained a quantity of albumen and of tube casts. The patient got $\cdot 02$ ($\frac{5}{16}$ gr.) of pilocarpine subcutaneously after the seventh fit, and the same quantity after the eighth. They both produced great salivation, but no perspiration. The tenth, eleventh, and twelfth attacks were very slight, and after the last of these the patient got 30 grains of chloral, per rectum, which procured her some sleep, and there were no more convulsions. The patient recovered perfectly, the albumen disappeared entirely from the urine, and she was delivered nine days afterwards of a small macerated fœtus.

In the second case the pilocarpine was not used till after the seventeenth attack, and the dose was repeated after the nineteenth, and at the same time musk was injected subcutaneously. The patient

had in all twenty-four attacks, and lay for a whole day insensible and with an almost imperceptible pulse, which necessitated the frequent subcutaneous injection of musk. Consciousness returned the day following, from which time she gradually recovered.

That these two cases are not altogether satisfactory Dr. Bidder himself confesses; indeed, after reading them we were ourselves quite unable to estimate the exact dose of pilocarpine which he administered. In neither case, however, had the injection any appreciable oxytocic effect.

PILOCARPINE AS AN OXYTOCIC.

Dr. Massman publishes two cases in the *Centralb. f. Gyn.*, April 27, 1878, where $\frac{5}{10}$ grain pilocarpine given subcutaneously for great œdema, with albuminuria and scanty urine, was very shortly followed by uterine action and the expulsion of the child. He does not look on these two cases as proving that pilocarpine has the power of exciting uterine action, though in each case labour set in shortly after the first injection, there having previously been no symptoms of it, and in both cases the children were premature.

Dr. Schauta also reports a case in the *Wiener med. Wochenschr.*, 1878, No. 19, in which premature labour at the ninth lunar month was induced by a single injection of $\frac{5}{10}$ grain of pilocarpine. Six hours afterwards a second injection was made, and delivery followed seventeen hours after the first injection.

Dr. Felsenreich, with the view of testing the effect of this drug, used it in nine cases of atony of the uterus during the puerperal state. The injections were made on the third, fourth, and fifth days *post partum*. The dose used was the $\frac{5}{10}$ of a grain. In only three cases had the injection any effect on the uterus, and Felsenreich thinks that the treatment is worthless in case of too profuse flow of the lochia. He draws attention to the fact noticed by Petrinás, that pilocarpine has a tendency to interfere with the heart's action, and must therefore be used with great caution where there is any irregularity in its action (*Wiener med. Wochenschr.*, 1878, No. 22).

In an original article contributed to the *Centralblatt für Gynækologie* of July 20, 1878, Dr. E. Welpner gives a case in which pilocarpine entirely failed to induce premature labour in the 35-36 week.

The woman had had one child previously, which had died soon after it was born, the labour being very protracted, and delivery

being finally effected by the forceps. On May 16th, .3 gr. of pilocarpine was injected into the skin over the epigastric region; on the 17th two injections were given, containing .45 of a grain of pilocarpine; on the two following days the injection was repeated, but at the end of this time no alteration was discernible in the cervix. The injections were then discontinued for three days and then resumed for three days more, when they had to be discontinued as they caused copious vomiting. Premature labour had finally to be induced by puncturing the membranes.

Dr. Prochownick, of Hamburg, also publishes two cases of puerperal eclampsia which he treated by the subcutaneous injection of pilocarpine (*Centralb. f. Gyn.*, June 8th, 1878). The first patient was a primipara who was attacked with the most violent convulsions eight days before the expected termination of her pregnancy. Before the pilocarpine could be procured she had had a second attack, having never regained her consciousness after the first. The dose used was .3 of a grain, which was followed in half an hour by profuse sweating and the setting in of regular labour pains; there were no more convulsions. After a lapse of nine hours convulsions were again threatened, when the pilocarpine injection was repeated, and was followed almost immediately by a fit. In half an hour the patient was again in a profuse sweat, and in an hour and a-half she regained consciousness. The labour in the meantime had progressed most rapidly, so that there was no occasion for the use of the forceps, the child being born thirty-five minutes after the rupture of the membranes. In this case no other treatment was tried except the pilocarpine.

The second patient was attacked during her sixth labour, but, though she did not regain consciousness after the fit, the child was born without any recurrence of the convulsions. The placenta was retained and could not be removed even when the woman was fully narcotised, on account of the tetanic contraction of the uterus. During the attempts at its removal the woman had two well-marked fits. The narcosis was then abandoned and pilocarpine (.3 of a grain) administered subcutaneously. The effect was the same as in the first case; as soon as the perspiration was profuse the uterus relaxed, and the placenta was removed without difficulty, and there were no more convulsions. In conclusion, Dr. Prochownick thinks that, besides the rapid and favourable effect of the pilocarpine on the convulsions, it had undoubtedly some effect on the uterus, though whether direct or indirect is as yet impos-

sible to say. He thinks the dose might without any danger be increased to $\cdot 46$ of a grain. He thoroughly agrees with Fehling (*vide ante*, p. 319) as to the treatment of eclampsia, only he would prefer the pilocarpine to chloroform, as likely to cause regular action of the uterus, and thereby the rapid delivery of the woman with the minimal amount of danger to the child.

A NEW METHOD FOR TREATING HÆMORRHAGE FOLLOWING
ABORTION.

This is the title of a paper by Dr. Boeters, in the *Centralb. f. Gyn.*, 1877, p. 355. Hæmorrhage due to the retention of some portion of the ovum is by no means uncommon after abortion, and is often very difficult to treat; for very often the patient does not apply for assistance till a considerable time has elapsed, when the os has had time to contract, and is therefore no longer sufficiently dilated to allow of the finger being introduced into the uterus. In such cases it has heretofore been considered necessary as a preliminary measure to dilate the cervix with sponge-tent, or laminaria, before any attempt could be made to remove the cause of the hæmorrhage. This is not only troublesome, but it also takes time, and even when most skilfully performed is not altogether free from danger. Should, however, the uterus be fixed by old adhesions, or should there be any fresh inflammatory exudation in the pelvis—either of which conditions greatly increase the danger of any attempt at dilatation—the case becomes most perplexing. On the one hand there is the danger of the existing hæmorrhage, on the other the risk of increasing the inflammation by any efforts at dilatation. Being frequently called on to face these difficulties, it occurred to Dr. Schede that it might be possible, even in cases where the os had already contracted so as to prevent the finger being introduced into the uterus, to pass one of Simon's scoops (which is like a very deep spoon) through the still patulous cervix, and so remove the offending body without encountering the trouble, danger, or delay of dilating the cervix. This method he (Schede) has found to succeed far beyond his expectations, and it is so little painful that he thinks the administration of chloroform quite unnecessary. It may be used, too, as a diagnostic measure; but it is especially serviceable when the uterus or its appendages are inflamed.

Simon's scoop has the great advantage over the curettes that are made use of by many practitioners—that it is not liable to

wound the healthy mucous membrane, for the sharp edge of the scoop is at right angles to the direction of motion, and it has been found by surgeons that it requires an amount of force that is quite unjustifiable to cause with this instrument any serious injury to the healthy tissues. In all cases a drainage tube was left in the uterus for a period of from eight to twenty days.

The appearance of this paper has called forth a communication on the same subject from Dr. Paule F. Mundé, of New York, which will be found in the *Centralblatt für Gynäkologie* for March 16, 1878. In July, 1874, Dr. Mundé used Simon's scoop to remove some remnants of a hydatid mole two months after the expulsion of the main portion; and after the operation, in order to guard against the chance of septicæmia, he painted the interior of the uterus with tincture of iodine. He relates a most interesting case of abortion with retention of the placenta, after amputation of a cancerous cervix by the galvanic cautery. Owing to the fixation of the uterus by cancerous infiltration, he was unable to pass the finger far enough into its cavity to remove the placenta, and as hæmorrhage was going on he introduced Simon's large-sized scoop, and by means of it brought away the placenta.

Dr. Mundé would, however, confine the use of the scoop to cases where a large portion of the ovum has remained behind, and which present themselves for treatment within a few days after they have aborted—while if the portion retained be very small, and the case does not present itself till the os has had time to close, he makes use of the blunt wire curette, a plate of which may be found in the last edition of Thomas' work on the "Diseases of Women," p. 609, which he (Thomas) recommends for the removal of vegetations and granulations from the interior of the uterus, in cases of endometritis polyposa, or villosa. The instrument is 9 inches long— $3\frac{1}{4}$ of which is handle—the rest of it is formed of pliable copper wire $\frac{1}{8}$ of an inch thick, tapering to $\frac{1}{16}$ of an inch at the top, where it is bent so as to form a loop $\frac{3}{8}$ inch long and $\frac{1}{4}$ inch broad—the wire forming the loop being at the same time flattened along one side. This instrument is made in three sizes, and from the pliability of the wire forming it, it is quite impossible to inflict with it any injury on the uterine mucous membrane. The whole operation does not take much more than a couple of minutes, and the patient may walk to her home without danger. Dr. Mundé has treated fifteen cases in this manner, and is thoroughly satisfied with the results.

In conclusion, he would use the wire curette in cases where a

small portion only of the ovum was retained and a considerable time had elapsed since the patient aborted; whereas he would confine the scoop to cases of recent abortion where the whole, or a very considerable portion, of the placenta was retained.

THE ADVANTAGES OF CRANIOCLASM OVER CEPHALOTRIPSY.

(Heinrich Fritsch. Volkmann's Sam. No. 127.)

The invention of the cephalotribe is looked on by many as perhaps the most important addition to the art of obstetrics that has taken place during the present century. Fritsch, while fully recognising the great advantages that delivery with the cephalotribe has in many cases over the older methods, points out that there are many disadvantages connected with its use, which no amount of skill or experience on the part of the operator can thoroughly overcome. Thus, it is often impossible to avoid, more or less, injury to the soft parts; and Fritsch thinks we have a proof that such injury is far from being uncommon in the frequency of septic infection (which presupposes some amount of trauma, however slight) after the operation of cephalotripsy. Besides this, the application of the instrument itself is, in some cases, extremely difficult, and in some cases quite impossible. Thus, if the head is above the brim and rests laterally in one or other iliac fossa, or anteriorly on the pubis (as it frequently does in cases of pendulous abdomen), the question whether the instrument will slip off the head once or ten times does not so much depend on want of ordinary skill in applying it, as on how long the operator takes to recognise the fact that in such cases the instrument cannot be successfully applied at all. That the slipping of the instrument is not necessarily due to want of skill is proved by its happening to such men as Dubois, Credé, and others. Now, the slipping of the instrument has two great disadvantages—firstly, it may cause direct injury to the soft parts; and, secondly, it makes the re-introduction of the instrument necessary. Another accident that makes the reapplication of the instrument necessary is its rotation, so that the curve of the instrument no longer corresponds to the curve of the pelvis.

If the head be movable above the brim when the instrument is applied, the effect that will be produced on the position of the head by screwing the blades together will depend on the original position of the head with regard to the brim. Thus, if the head be in the right oblique diameter, and the blades of the

instrument be applied in the transverse, then the approximation of the blades tends to turn the occipito-frontal diameter of the head into the conjugate diameter of the brim—in other words, to make the long diameter of the head correspond to the short diameter of the pelvis. In this case extraction is impossible, unless the long diameter of the head is made to rotate into one of the oblique diameters of the brim. If this rotation takes place while the instrument is *in situ*, then the curve of the instrument no longer corresponds to that of the pelvis, and the instrument must be taken off and reapplied. In order to overcome this objection some instruments are made without any pelvic curve, but with these it is impossible to get hold of the head if it does not lie exactly in the axis of the brim of the pelvis.

Besides all these disadvantages, Fritsch holds that the use of the instrument is not without danger to the mother if the conjugate measures 7 cms. (2.79 inches), or less, and once it is applied it is impossible any longer to follow with the finger the course of the labour. Shortly stated, the faults of the cephalotribe are:—1. That it is liable to cause injury to the soft parts. 2. That it has often to be several times applied, either on account of its slipping or rotating within the pelvis. 3. It is not applicable unless the conjugate measures 7 cms., or very little under it. 4. When the instrument is applied we can no longer follow with the finger the mechanism of the extraction.

Fritsch then goes on to examine the advantages of Braun's cranioclast, which, he says, differs entirely in make and in the object at which it aims, from the instrument invented by Simpson. In the first place it is merely an instrument for extracting, not for crushing, the head. This may be considered by many as an objection, but even the cephalotribe only lessens the head in one of its diameters, while it is the counter-pressure of the pelvis which prevents the other diameters increasing. When the cranioclast is applied the head is forcibly drawn into the brim of the pelvis, which compresses it on all sides. It is true we cannot by means of the cranioclast crush and lessen the base of the skull; but the bizygomatic diameter is larger than the diameter of the base, and where the face can pass the base can also pass. Indeed it is possible, by means of Braun's cranioclast, to turn the base of the skull up on its edge and so extract it. It has this further advantage over the cephalotribe, that it takes up much less room—being itself smaller, and one of its branches being applied within the

cranium; while, after a very slight amount of traction, it usually comes to lie in the axis of the pelvis, instead of being the whole time pressing against its sides, and can therefore be thoroughly guarded by the hand from inflicting the slightest injury on the vagina. Once the brain is allowed to escape, the pressure on the skull caused by dragging it forcibly against the brim of the pelvis will cause the cranium to bend inwards before the bones of the pelvis become separated. The application of the instrument is much easier than that of the cephalotribe; for if the skull can be perforated the blades of the instrument can be applied, no matter whether the head is situated in the iliac fossa or anteriorly on the pubes. It is true that the piece of the skull that is seized may be torn out, but we can always know when this is about to happen, and the traction which causes it generally suffices to bring the opening in the cranium into the middle of the pelvis, when there is not the least difficulty in taking a fresh hold. In no case can the reapplication of the instrument be at all compared to that of the cephalotribe; if it is applied over the face it cannot tear out, but, if traction exceeding 120 lbs. be applied, the neck will probably first give way. If the os is not fully dilated it is very much easier to apply than the cephalotribe, and its application has no tendency to alter a favourable position of the head, as we have already seen is the case with the latter instrument. It is, however, in cases of equally contracted pelvis that the advantages of the cranioclast over the cephalotribe are seen to greatest advantage, extraction by it being in such cases quite easy once the contents of the head have been allowed to escape. If, however, the pelvis measures much less than 7 ctms. (2·79 inches) extraction is impossible by means of the cephalotribe; whereas, by breaking up and removing the parietal bones with the cranioclast and Boër's bone forceps, and turning the base of the skull on its edge, we can effect delivery in cases where the conjugate is reduced to 4 ctms., or 1·57 inch. Fritsch has never as yet succeeded in removing the occipital bone in this way, but this does not much matter, as it lies flat on the base of the skull during the extraction. As soon as we have removed the parietal bones we should pass the fenestrated blade of the instrument upwards till it lies over the chin—if this is not feasible, then we may pass it into the mouth—during which manipulation the face usually turns somewhat downwards. The other blade is then passed into the cranium so as to lie between the frontal bones, and then, when the blades are screwed together, the base of the skull is turned up on

its edge. We must now bring the bizygomatic diameter of the head into the transverse, or into one of the oblique diameters of the pelvis, before we apply extraction.

This instrument may also be applied to effect the extraction of the body when it does not readily follow the head, by first passing the perforator in between the scapula and clavicle, and then applying the instrument so as to include the spinal column between the branches; or it may be used in transverse or breech presentations, and for the delivery of monsters.

The advantages of this instrument are, therefore:—1. That it is easy to apply. 2. That it is not liable to cause injury to the soft parts of the mother. 3. It can effect delivery when the pelvis measures only 4 cts. in the conjugate diameter. 4. It may be employed in transverse and breech cases, or to effect the delivery of monsters.

ABORTIVE TREATMENT OF BUBO.

By means of vesicating fluid a piece of the epidermis about the size of a shilling is removed over the seat of the swelling. On the denuded cutis is placed a small piece of charpie steeped in a saturated solution of perchloride of mercury, and over all is placed a linseed-meal poultice, which is kept in its place for twenty-four hours. At the end of this time a greyish eschar is found, and after poultices have been applied for two or three days there remains only a rather deep depression with a granulating surface, which readily heals by simple dressing. The mercurial solution causes for the moment a sharp pain, but it soon disappears; and in twelve cases of inguinal bubo treated in this way the best results followed.—*L'Union Médicale.*

S. W.

TREATMENT OF GLANDULAR ENLARGEMENT.

DR. QUINART not only advises the application of a series of blisters over the enlarged glands, but he employs the same treatment even where the pus has already formed. Thanks to this method, he has succeeded in obtaining the resolution of inflamed glands which contained several ounces of pus. When perforation of the skin is imminent, he punctures the tumour at its most dependent part, and after the pus has discharged itself, he covers it with a blister exceeding the size of the opening by one or two inches. The next day the blistered part is dressed with mercurial ointment, and a new blister is applied as soon as the first begins to dry up.—*L'Union Médicale.*

S. W.

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

SESSION 1877-78.

President—G. F. WALES, M.D.; F.R.C.S., Ed.

Hon. Secretary—WILLIAM WHITLA, M.D.

Ninth Meeting.

The President, DR. G. F. WALES, in the chair.

Amputation of Upper Extremity.

DR. WHITLA (Honorary Secretary) exhibited an upper extremity which he had removed a few days previously for a large recurrent growth of the forearm and hand, with the following history:—

J. B., aged sixty, a strong, healthy man, sought advice for a small tumour situated below the styloid process of the radius, in the interval between the extensor primi and secundi pollicis, and extending internal to this later tendon. It was as large as a hen's egg, and at parts gave the sensation of fluctuation. The skin was movable over the tumour. It looked at first sight like a large ganglion, for which it had been mistaken by two surgeons. It was of upwards of twenty years' growth, and latterly had been very painful, and interfered with the motion of the hand, which had become almost useless. He willingly consented to its removal, which was accomplished easily in May, 1877—the tumour dissecting out from its connexions without any adhesions; it had dipped down beneath the tendons and lay upon the radial artery and external lateral ligament of the wrist, extending by a tailed end under the flexor tendons on the front of the joint. From this latter situation it was turned out by the handle of the scalpel. The tumour itself had a distinct fibrous capsule, and resembled a very large testicle in appearance. On cutting into it, it was seen to be made up of matter resembling in appearance and consistence foetal brain, with minute extravasations, causing blotches of cherry-red and darker colour through it.

Its microscopic characters were those generally seen in myeloid growths—giant cells enclosing many oval nucleolated nuclei, as well as free nuclei, and many caudate and spindle-shaped nucleated cells, like fibre cells. There were here and there throughout masses of filamentous tissue, resembling imperfectly fibrillated connective tissue in the fetal condition.

The tumour returned in the cicatrix about four months after its removal, and continued to rapidly increase in size. The patient sought the advice of an unqualified practitioner, who applied some local remedy, which caused extensive suppuration. In this state he again consulted me, worn out with pain and anxiety; and, having procured the assistance of Professor Gordon, I amputated the limb at about the middle of the humerus.

The beautiful dissection of the tumour, which I now show to the Society, was kindly made by Professor Redfern. Its attachments are deep, being adherent to the carpal bones; but the unusual and most remarkable point in the case seems to be the manner in which it has behaved towards neighbouring structures. At no spot, for example, could it be seen that the skin was *infiltrated* with the growth, though the two seemed intimately connected. They readily were separated by dissection. The tendons of the wrist and fingers showed similar anomalous relations. The common extensor of the fingers tunnellled through the centre of the mass unaffected, while one of the deeper tendons was lost in it. The tendency of the tumour seemed to be to push the tissues aside, and, at the same time, its growth was so rapid as to almost convince one that it buried the surrounding tissues in itself, though at no place could real infiltration be shown; its microscopic characters were less definite. Cells—epitheloid in appearance—with bright nuclei, predominated, and many oval or rod-shaped nuclei were free. Bodies closely resembling the forms described by Dr. Bennett, as seen by him in the “fibro-nucleated tumour,” were present, and throughout were evidences of the same filamentous matrix as was seen in the first tumour. Taking the history and physiology of the tumour into consideration it had, doubtless, many characters of both the innocent and malignant growths, and seemed to belong to the debatable ground between.

DR. FAGAN thought the clinical history of the tumour very peculiar. Its recurrence after the first growth lasting twenty years, he believed, was unique. The naked-eye characters of the tumour would alone lead him to believe it was of malignant nature. He detailed the history of a case bearing on the one before the Society. From what he had seen of tumours, he believed the less we interfered with innocent ‘growths’ the better, unless their removal was necessary for the proper exercise of the limbs upon which they grew, as in this case.

DR. F. E. BECK concurred with Dr. Fagan. He thought, in this case, that the second removal was absolutely necessary.

DR. DEMPSEY thought the speedy recurrence of the growth, after its first removal, was evidence of its malignant nature.

DR. WALES thought the tumour a very interesting one. He did not believe that we were justified, in the present state of our knowledge, in denying the existence of an intermediate race of tumours between the malignant and innocent growths. He reviewed the history and characters of the tumours, and thought it did not belong to either class properly speaking. He commented upon the results of the last debate of the London Society upon cancer, and the uncertainty of many of our theories about the origin of carcinomatous growth. He believed there was nothing for this case but operation, and he thought there was a chance of its not returning.

Calculus Disease of the Urinary Organs.

DR. FAGAN showed an interesting specimen of "calculous disease" of the urinary organs. The genito-urinary organs were removed entire. The kidneys were enormously enlarged—the right weighed 81 ounces, and the left 14; the capsule was adherent; they were lobulated; the pelvis dilated. The ureters were of the calibre of the small intestine. At the point of entrance of the left into the bladder was lodged a calculus the size of a walnut. On the opposite side was another of similar dimensions, but not in the ureter. Through the base of the bladder, behind the prostate, a sacculus, the size of a small orange, protruded; in this were lodged two calculi. There was another calculus in the prostate. The penis was very large, and the wound into the urethra remained unclosed, through which Dr. Fagan removed a calculus that was situated a couple of inches anterior to the bulbous portion. The history of the case was narrated by Dr. Fagan as follows:—

George Stockford, aged thirty-five, was admitted under my care at the Royal Hospital, on the 16th of March, 1878. He presented a wasted, anxious appearance, showing unmistakable signs of long-continued suffering. He stated he suffered from kidney disease. When I examined him, I found he had incontinence of urine, and a calculus impacted in the urethra about an inch and a half anterior to the bulb. Ten years previous to the date of admission he suffered from severe aching pains in back and over the regions of both kidneys, after which he noticed his urine become darker and tinged with blood. This condition continued for about a year, when he was admitted to the hospital, under Doctor Cumming, for disease of the kidney, and after some time was discharged, improved in every respect.

In about two and a half years after leaving hospital, he again began to experience pain over the kidney and in the region of the bladder.

Blood appeared again in the urine, and he suffered from dysuria. Matters continued thus till about two years ago, when he passed two small stones per urethram. He now felt for the first time the presence of a small body in the urethra, which slowly increased in size. He gradually lost control over the bladder, and was compelled to wear a urinal. The pain produced by the calculus was sometimes of an excruciating character. Before passing the calculi, he suffered frequent attacks of nephritic colic.

Two days after admission I incised the urethra over the site of the calculus; the tissues were very much thickened, and I had some slight difficulty in turning it out. Its long diameter was over an inch, and was placed transversely in the urethra. From before backwards it measured eleven lines, and in thickness five lines. It weighed something over a drachm. It was composed of an uric acid nucleus, coated with copious deposits of phosphates. It was channelled in its upper and lower surfaces by the urine trickling past it.

A few days after the operation he complained of great pain over the region of the right kidney. He suffered from constant vomiting, and died ten days after from exhaustion.

DR. BROWNE, who had seen the patient from whom Dr. Fagan's specimen was taken, thought that, though the operation had hastened his death, nevertheless he was right in operating. He detailed a case of his own, where he was consulted by a patient for stricture, though he could only get in a No. 3; urinary fever, with high temperature and rigors, supervened; pulse very high, and pain set in over the right kidney, and death ensued. He found, on making a *post-mortem* examination, that the capsule of the kidney was very much enlarged, and filled with pus, and that a large calculus was lodged in the bladder, which had caused ulceration and the escape of urine into the peritoneal cavity. Had he got in a lithotrite in time he could have prolonged if not saved his life.

DR. O'MALLEY thought the specimen a very rare one, and he believed that Dr. Fagan was right in operating.

DR. WALES, in thanking Dr. Fagan for the specimen, commented upon the evidences of diseased action, showing how dependent the different parts of the genito-urinary tract were upon the proper and healthy state of the remainder. He thought that the specimen should be brought before the Society again after the kidneys were opened and the calculi examined.

Cases of Contracted Knee-joint.

DR. J. WALTON BROWNE exhibited four patients upon whom he had operated for contracted knee-joint; also the photographs of three cases upon which he intended operating.

DR. BROWNE said that he had been much pleased with the treatment adopted, a few years since, at Mercer's Hospital, Dublin, by the late Mr. Morgan, which was designated by that surgeon the "immediate treatment," and stated that he intended operating in all suitable cases which should present themselves by the "immediate treatment." He referred to the classification of ankylosis of joints adopted by Morgan—viz.: (1) A firm, true ankylosis; (2) A false ankylosis; (3) Contraction; and pointed out that it was in cases of false and fibrous ankylosis that the "immediate method" was specially applicable; he also stated that in those cases of fibrous ankylosis where some degree of "spring" is present, most hopeful results could be anticipated.

He drew attention to the difficulty of diagnosis in cases of fibrous ankylosis in which the adhesions were very short—these cases possessing no perceptible degree of motion, and simulating true or bony ankylosis—and referred to Sayer's method of diagnosis—i. e., by administering an anæsthetic, and using flexion and extension of the joint; waiting for twenty-four hours—at the expiration of that time, should there be some degree of swelling about the joint, the case is one of fibrous ankylosis. He had found this method of diagnosis of service in a case of ankylosis of the hip-joint.

In three of the four cases exhibited, ankylosis was of traumatic origin; and the fourth case followed an attack of acute rheumatism, the limb being kept in a flexed position for three months. In all the cases the leg was at right angles to the thigh.

In two cases the deformed limb was four inches shorter than its fellow, and in the other two cases the limbs were two inches shorter than the opposite side. In each case the patella was ankylosed to the external condyle of the femur.

In one case the internal condyle of the femur was hypertrophied, so that when the limb was operated upon and extended, the patient appeared as if suffering from genu valgum.

He said that it had been shown by Morgan that most successful and satisfactory results could be obtained in cases of the so-called "white swelling" of the knee-joint, and that the cases he purposed operating upon had suffered for many years from chronic disease of the joint. In performance of the operation, the patients were placed under the influence of chloroform, the flexors of the thigh divided subcutaneously, and the joint forcibly and suddenly extended. The small wounds produced by the tenotomy knife were closed by pieces of lint, saturated with tinct. benzoin co. The limb was then carefully bandaged to a long splint, extending from the tuberosity of the ischium to the heel, and adapted to the contour of the limb. The splint had a foot-piece attached, to which the foot was bandaged, also two cross pieces of wood to prevent the limb rotating. An ice-bag was kept constantly applied

to the joint, and was not removed until all heat and tenderness of the joint had subsided; in one of the cases ice was kept applied for four weeks.

In dividing the tendons, the only point of importance was the division of the biceps tendon. In operating, the tenotome should be inserted parallel and close to the side of the tendon, and cut from the inside or popliteal aspect towards the skin. To avoid wounding the peroneal nerve, keep the tenotome close to the inner side of the biceps tendon, and, when passed deeply enough, turn its edge outwards; occasionally it is possible to separate, by your fingers, the nerve from the tendon, and roll it inwards. In the four cases the division of all the tendons was found necessary.

After division of the tendons, and when making extension, you should be very careful, as pointed out by Morgan, to place either your own hand or the hand of your assistant in the popliteal space and support the head of the tibia, lest dislocation of the tibia should occur. Two of the cases were under treatment for three months before all pain and heat of joint had subsided; the other two were discharged in six weeks, with stiff but useful limbs. Before leaving, I had boots with thick cork soles made for them, and to-night you are able to see the amount of progression they possess.

Large Hydatidiform Mole.

DR. CORE showed a large hydatidiform mole, and gave the following history:—

Mrs. C. R., who has had six children—the latter three syphilitic—became pregnant in January, 1878, the catamenia having ceased on the 7th of that month. The ordinary early signs of pregnancy were present for two months, when, after having received a severe fright, she fell into ill health, feeling, as she said, quite different to what she had ever done before. Slight watery and sanguineous discharges took place at intervals up till May, from which time rapid distension, accompanied by considerable hæmorrhage, went on till 20th May, when, pains having set in, I was sent for. I found her considerably blanched, and with quick small pulse. The abdomen, as to size, had the appearance of a seven months' pregnancy. On palpation, however, a doughy, boggy feeling, marked differently from that usually present, caused me to suspect a state of matters which a vaginal examination at once clearly revealed. The uterine pains being feeble, a dose of ergot was followed by the expulsion, in a very short time, of a large hydatidiform mole, part of which I submit to your inspection. No further hæmorrhage occurred, and the lady made a good recovery.

Oblique Fracture of the Femur.

DR. BROWNE exhibited a femur which had been removed from a woman, aged sixty years. She was admitted into the hospital under his care, suffering from compound comminuted fracture of the left leg, oblique fracture of the right femur, and injuries of the pelvis. The case progressed favourably until the sixth day, when it was deemed necessary to amputate the left leg. At the end of four weeks, when the stump had quite healed, it was found that the fracture of the femur had not united. A few days subsequently, the patient was seized with pyæmia, and died. Upon *post-mortem* examination it was found that there was an oblique fracture of the lower third of the femur, and some fibres of the vastus externus had become implanted between the fragments, and prevented union taking place.

Version versus Forceps.

PROFESSOR DILL said—Mr. President, the paper which I have this night the honour of bringing under the notice of the Society is one of much interest, but it may be considered too comprehensive for such an occasion as the present. I shall, however, endeavour to reduce it to as narrow a limit as possible, or as may be consistent in discussing such an extensive subject as indicated by the notice of it in the circular—viz., “Version *versus* Forceps: with notes on other operations suited to the different degrees of pelvic contractions, including Gastro-Elytrotomy and Ablation of the Uterus;” and, indeed, I may say that we should not be unprofitably occupied were we to continue the discussion of this very important and extensive subject over more than one meeting. Obstetric surgery is at all times an anxious department in practice, and it becomes more so when we find ourselves in the presence of a case surrounded with such difficulties and embarrassments as may raise doubts in the mind of the operator as to one operation or another.

It may be here stated that, although there are principles and clearly-defined rules laid down for our guidance by the great masters in obstetric surgery, yet we find them but approximately correct when we come to put them to the test of practice; for we have the scheme of relation of operations to the different degrees of pelvic contractions so carefully reduced to figures that one is tempted to think he has nothing to do but to invariably follow the rule. So, when he has discovered in his patient the first degree of contraction, he has but to introduce the forceps and deliver; or, when he has discovered the second degree of contraction, introduce the hand and turn; or, when in the third degree, perforate; or, in the fourth, perform “Cæsarean section.” I need not say here that we cannot pursue this practice either rigidly or uniformly, for by so doing

we would be often wofully disappointed. I have no doubt gentlemen present have had charge of a case of labour where the pelvis, although contracted, was not so beyond the first degree of contraction, and yet they have failed in the use of the forceps, even when perhaps they had exerted a greater power than prudence would sometimes dictate. The perforator is the instrument which is usually taken up after having experienced failure with the forceps; but, as this and all instruments associated with it in cases of craniotomy are necessarily not only destructive of the life of the child, but are found, even with the greatest care, to inflict occasionally serious injuries upon the soft parts of the mother, so that one is often inclined to ask himself the question—Is there no alternative? And, without hesitation, I am bound to answer the question in the affirmative: for as the forceps are found, as stated, to be unsuccessful in some of these cases, should we not, before contemplating the destruction of the child, take into consideration—if possible, perform—the operation of podalic version, and by so doing give the child another chance for its life? It is not for a moment to be supposed that I am presuming to advance any new theory, for version under these circumstances was practised by some of the ancients, and latterly it has been revived, the subject elaborately worked out, and the operation confidently recommended, by the late Sir J. Y. Simpson. Since his day, the same has been embodied in the works and teachings of some of our highest authorities. I know, however, that it is a practice so very rarely adopted either here or elsewhere, and I believe it is of such value and importance, that I am justified in craving for it the careful consideration of the members of the Society.

I have, in not a few cases, successfully performed the operation of turning, after the natural powers of the mother and the forceps had failed, and when, under the usual line of action, no other resource was left but the destruction of the child. I most candidly confess I was very slow and loath in believing, with Sir J. Y. Simpson, that the head could be brought through a narrower pelvis when its base offered at the brim than when the vertex presented. I am now, however, from my own experience, satisfied that an attempt should be made in many cases to deliver by turning, when the child is known to be alive and when other means have failed. It should, perhaps, be stated here that I believe it is not altogether so much because the base of the child's skull will pass through a pelvis which is found to refuse the admission of the vertex as that we find the narrowing of the pelvis often confined to one side; and if, in turning in such a deformity, we can manage to get the bi-parietal diameter towards that side where there is the largest space, and the bi-temporal into the narrowest space, then the extraction, I have found, becomes greatly facilitated.

The following cases, which have come within my own practice, may be offered here in illustration of the subject under consideration :—

CASE I.—Mrs. — had been in labour for some time, and in the hands of a midwife, when Dr. N. was sent for, who, after a long and cautious trial of the long forceps, found it impossible to advance the head, and was obliged to desist. He asked for my assistance, and after I had made myself acquainted with the character of the case, and although I discovered the difficulty to arise from the promontory of the sacrum projecting forwards and downwards on the right side, so as to diminish at this point of the brim the conjugate diameter to some extent, I was induced, because of more than ordinary anxiety exhibited to have a live-born child, to make another trial of the forceps, but I also failed. After making ourselves sure that the child was alive, we administered chloroform before attempting to turn. I introduced the left hand into the vagina, and with the right hand applied externally, the knees and feet were got towards the os. I seized hold of the latter, brought them down, and when the limbs and buttocks were extracted, we were encouraged to find that the child still showed symptoms of life. After placing the cord in the safest position, and after giving and taking a moment's rest, I proceeded to complete delivery by bringing down one arm, and then the other. When the arms were brought down, very considerable exertion was necessary in the direction of the axis of the brim before the head could be got away. I believe about four minutes elapsed from the commencement of the operation of turning till the complete extraction of the infant. It was not long till it breathed, and full respiration established. The infant, a male, was strong, and considerably above the ordinary size. In consequence of being placed under the complete influence of chloroform, the mother was quite unconscious of pain or suffering during the whole process of this otherwise severe operation, and which contributed so largely not only to her ease, but to the safety of her infant. Dr. N. has since told me that she made a good and a rapid recovery, and left her bed, as women of the poorer class in life usually do, in a very few days.

CASE II.—Mrs. M'C. had been ill some hours when I saw her at the request of Dr. M. The os was fully dilated, and the pains were strong, but the head showed no disposition to enter the brim. I made an examination of the parts, and found a knuckle on the left side of the promontory of the sacrum. The long forceps had been applied, and failed. I again made another attempt with them, but did not succeed. I was obliged to withdraw them, as I saw no chance of bringing the head down. Our patient was then placed under the influence of chloroform, the hand introduced, the child turned and brought away alive; respiration was established, as manifested by a strong and vigorous cry. The mother made a good and uninterrupted recovery, dressed and walked into the

next room on the tenth day. Without dilating farther, I may just say that the difficulty in this case was increased by the size of the child, which, when weighed, proved to be 14 lbs. 2 ozs.

CASE III.—Mrs. M.K., ill in labour for the fourth time. She was delivered of her first child with the forceps; of her second and third by craniotomy. I found her very ill; the os dilated, but making no further progress. Fortunately the liquor amnii was not all away, and I decided at once upon turning. This woman refused to take chloroform, but had great command of herself. I therefore entered upon the operation by introducing the right hand, as I believed the child presented with the posterior-dorsal aspect. I found the pelvis not very roomy, and the brim somewhat narrowed on the left side of the sacrum. However, I passed the hand with some difficulty up to the limbs, hooked a knee with my finger and brought it down, and extracted the child with more ease than I expected. The child breathed, but died in a very few minutes. The mother made a good recovery.

I shall not occupy the time of the Society with the details of other two cases, however interesting—suffice it to say that the pelvis was in each under the normal size. The forceps were tried, but failed, and afterwards turning was successfully accomplished.

Before concluding I should not withhold the fact that I have turned in several cases where I had afterwards to reduce the size of the head before I was able to get it away. Still I think I have stated enough to satisfy the sceptic that a man is justified in attempting to deliver by turning, where the child was discovered to be alive, when other means had failed.

DR. LINDSAY felt he could not criticise Dr. Dill's paper. He had been an old pupil of his, and he had listened with as much benefit that night as ever he did under his teaching. He was pleased with the statement that a woman should never die undelivered. He wished to state the facts of a case which occurred in his own practice, and then to ask the opinion of the Society, and also that of Professor Dill. The case was that of a patient rapidly sinking from pneumonia. There was no chance of saving the child or prolonging life, and was he right in delivering?

DR. BECK thought, as far as Dr. Lindsay's question was concerned, he would deliver at once, but if he was certain no good could come of it, he would leave matters alone. As to Dr. Dill's practice, as laid down in his paper, no second opinion should be offered; the only point was the difficulty of turning. He mentioned some illustrative cases. His difficulty was in the head slipping when very high up, but he always easily delivered by version. All the children lived but one.

DR. DEMPSEY's experience was altogether in favour of turning. He

thought it was a shocking thing to perforate the head. He met a case in practice where craniotomy had been performed, and the child taken away piecemeal. Afterwards pregnancy supervened, and he delivered a large living child with the forceps.

DR. WALES, in thanking Dr. Dill for his paper, referred to the experience of a large number of men in support of turning. He believed in the line of action as laid down in the paper, but thought that the difficulties of turning were rather under-estimated, and that it was not an operation to be recklessly undertaken by every young practitioner. Contrasted with the forceps operation, he believed it more difficult, especially for the inexperienced.

DR. DILL, in reference to Dr. Lindsay's question, said that although he believed it right that a woman should never die undelivered, still, if in a case he had not the shadow of a hope for the child, he would not interfere, because the operation of delivering under such circumstances always caused more or less shock. If it prolonged the mother's life one hour, he would deliver. On the other hand, if she were dying, and must die, and no chance of relief, he would not operate. He said that the remaining portion of the subject, as indicated in the introduction to his paper, would be brought before the Society's next meeting.

SPINAL HEMIPLEGIA.

THE following conclusions regarding this affection have been arrived at by H. Köbner from an analysis of forty-eight published cases and two hitherto unpublished ones of his own (*Deutsch. Arch. f. klin. Med.*). They do not differ notably from those already formulated by Brown-Séquard:—On the side *corresponding* to the medullary lesion are—1. Motor paralysis, complete or incomplete, according to the gravity of the case; 2. Hyperæsthesia to touch, tickling, pain, and temperature in the paralysed side; 3. Anæsthetic zone in the region whose nerves rise just below the lesion; 4. A larger or smaller hyperæsthetic band above the anæsthetic zone; 5. Absolute or relative elevation of temperature in the paralysed parts, and also frequently in the parts where there is hyperæsthesia without paralysis; 6. Paralytic phenomena in the cervical sympathetic when the lesion is situated above the cervical enlargement. On the side *opposite* to the lesion we find—1. Complete anæsthesia to touch, tickling, and temperature; 2. Preservation of voluntary motion and muscular sensibility; 3. Narrow band of hyperæsthesia below the anæsthetised part.—*Amer. Journ. of Nervous and Mental Diseases.*

R. A.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF
DUBLIN.

President—EDWARD HAMILTON, M.D.

Secretary—E. H. BENNETT, M.D.

Popliteal Artery closed by Catgut Ligature.—DR. BENNETT said: This is a section made vertically through the popliteal artery and vein, fourteen days after their ligature with catgut, in amputation of the thigh. The case was one in which albuminuria had existed. On a former occasion (March 9th) I showed the limb which required amputation, having been in a most extreme state of ulceration. It had been debated whether the operation was justifiable or not, considering the presence of albuminuria; but after a consultation my colleagues and I unanimously agreed that the lesser of the two evils would be amputation, that a very speedy death was promised by the disease if left to go on uninterfered with, and that the amount of kidney disease was probably not so serious as to contraindicate the operation. The amputation was accordingly done by the ordinary flap method, close above the knee, with strict antiseptic precautions, and was carried out successfully. The conduct of the case from the commencement to the end, as far as the stump was concerned, was strictly antiseptic. We had absolutely no complication in the treatment except one, as far as the limb was concerned. The flap fell readily over the face of the part, and was retained in position by the ordinary catgut sutures. The limb of the patient was greatly deformed. He had been in the habit of wearing it in an extreme state of flexion during his ordinary movements, and in such a way that we had some little difficulty in treating the stump, getting it fixed and keeping it quiet. A couple of days after the operation he became disturbed from some slight starting of the stump. This disturbed the flaps, and it was possible on the fourth day after the operation to see the site of the popliteal vessel in consequence of the tearing asunder of the recent union on one side of the flap. We weighted the limb with sandbags, replaced the dressing, and restored the flaps, and everything went on without complication until towards the thirteenth day, when he began to show signs of very hard respiration. The stump at that time had not been dressed for three or four days. He died with symptoms of laryngeal distress, not such as suggested a resort to tracheotomy; but the idea suggested was that some acute form of ulceration of the larynx had been set going. The *post mortem* examination proved that the obstruction was due to œdema of the glottis. So far

as I could determine, I think the principal exciting cause of the laryngeal distress was the protracted effect of the ether inhalation on a system in such a condition of weakness as albuminuria induces. The great sense of dryness produced in the air passages and his own sensations—for days afterwards he did not lose the sensation of the ether—made me suspect that it had a large share in determining the œdema. These remarks, however, are foreign to the specimen itself. When the man died we opened the stump, tearing through the recent lymph that had closed it, and we saw no sign of any casting-off of any slough. There were two catgut ligatures used at the operation, one upon the femoral artery and the other upon the vein. Just as the stump was put up, a troublesome hæmorrhage occurred from the vein, and we applied a ligature to control it. The artery presents the normal features of a vessel closed by a ligature. We have a conical clot extending within it for some distance. There is complete occlusion, and the walls of the artery are identified with the blunt end of the cone of the clot. A small amount of perfectly soft recent lymph filled the outer part of the walls, and the vessel was cut across by the ligature, which has completely disappeared. The closure, however, was complete and of the normal kind. Beyond the closure can be seen the remains of the part of the vessel outside the ligature which has not sloughed away. I direct attention to this, because some doubt is cast upon the behaviour of vessels under such circumstances in a communication made to the Pathological Society of London by Mr. Callender. He says:—"Having an opportunity for examining a superficial femoral artery which was removed from a thigh nineteen days after an amputation for ununited fracture of the left femur of a woman, fifty-one years of age, I found that the vessel was closed by an ordinary coagulum extending three-quarters of an inch from the cut extremity of the artery towards the heart. There was no trace of the carbolic catgut with which the vessel had been tied. There was no appearance of constriction at the free extremity of the artery, and there was no adhesion to its walls, save to some thickened tissue, which lay by their side." I bring this vessel under the notice of the Society because it is clear that in this instance, at all events, the catgut disappeared, and that at the time of the patient's death the vessel was closed not by coagulum only. Absolutely an opposite condition of affairs presents itself here, so far as the closure of the vessel is concerned. The complete closure demonstrated by Jones has been effected, and we have no trace of the catgut ligature left. The same remark applies exactly to the vein. You can see that the closure of the vein has been effected, in identically the same way as that of the artery. The coats are compressed and brought to the form of a truncated cone below the clot, which is much softer than in the artery.—*April 13, 1878.*

Compound Comminuted Fracture of the Sphenoid.—DR. E. W. COLLINS said: The fragments of dead bone which I exhibit are the larger sequestra removed recently from the great wing of the sphenoid, under the following circumstances:—In November last, a fine healthy boy, fourteen years old, was struck in the left temple by a moulding-cutter, propelled with considerable force from some machinery eighteen feet distant, which he was minding in a saw-mill. He was taken up senseless, and bleeding profusely from the wound, so that he quickly lost a large quantity of blood. He was carried to Jervis-street Hospital in a condition of syncope, due to hæmorrhage and cerebral concussion. A large lacerated wound in the left temporal fossa commenced immediately above the zygoma and passed directly upwards for several inches. From a superficial examination it was evident that the depth was considerable. Owing to the collapse the hæmorrhage had ceased. The wound, therefore, was interfered with as little as possible, and any detailed examination regarding its depth was avoided, in order not to disturb such natural hæmostatic processes as might already have taken place. Firm pressure was maintained over the wound by a large compress and knotted capelline bandage. At my visit on the following morning I learned that severe reactionary hæmorrhage had taken place at 5 a.m., which the resident pupil had great difficulty in arresting by continued pressure over the wound. I therefore had the boy conveyed to the operation theatre, in order to thoroughly examine the wound and adopt such measures as might be necessary to prevent further recurrence of bleeding. That the bleeding was arterial, and from a vessel of considerable size, I was convinced by the time of its occurrence, its profuseness, and the difficulty experienced by the resident pupil in its temporary arrest. Ether having been administered and the compresses removed, masses of coagula were seen filling the wound, and profuse bleeding immediately took place. Having cleared away the coagula, my forefinger passed downwards and backwards through the wound, between the zygoma and the sphenoid, into the zygomatic fossa, where the internal maxillary artery lay. The zygoma was bared of periosteum to some extent, but unbroken. In the upper wall of the zygomatic fossa the top of the finger passed into a large fissure, where the base of the great wing of the sphenoid was so extensively fractured that the pulsations of the brain were perceptible. No loose pieces of bone were felt. Meanwhile arterial blood had rushed so profusely from the deepest part of the wound—either from the internal maxillary artery itself or from one of its largest branches (possibly the meningeal)—that the boy, weakened by the two previous hæmorrhages, became alarmingly collapsed. By the aid of ether, administered subcutaneously, he rallied. Direct digital pressure within the wound somewhat controlled, but did not completely arrest, the flow of blood. The depth from the surface of the zygomatic fossa, in which the forefinger was

buried; the narrow, undilatable channel leading to it, between the zygoma and sphenoid, which admitted little more than the finger; and the constant welling up of the blood through the wound, rendered it impossible to ascertain with exactness the source of the bleeding or to adopt any other measure for its control than direct compression within the wound. Ligature of the carotid artery was reserved as a *dernier ressort* in the event of the failure of compression. The entire wound was therefore carefully plugged from the bottom with long strips of lint. This effectually checked the hæmorrhage. The gradual removal of the plugs was commenced on the fourth day, from which time they were thoroughly carbolised. On the ninth day the last plug was floated out without recurrence of bleeding. At each dressing, when the wound was filled with water, the fluid rose and fell in unison with the pulsation of the brain. No untoward intra-cranial or other complications arose—owing, I believe, largely to the free bleeding. The wound rapidly healed by granulation to a certain point. The sinus, which continued to discharge in January, afforded evidence that necrosis of the fractured sphenoid bone had taken place. The boy was therefore sent home, to allow of the gradual and complete separation of the dead bone before its removal was attempted. On his return at the end of six weeks, the probe struck loosened dead bone. On the next morning, having opened up the wound in the temporal fossa, I removed many large, detached sequestra from the sphenoid. Smaller pieces of bone subsequently exfoliated, and were withdrawn from time to time, till the last piece was extracted about five months after the accident, and the wound then completely healed. The boy has since presented himself on several occasions, and is in the enjoyment of excellent health, both mental and bodily.—April 13, 1878.

Cerebro-Spinal Meningitis.—DR. HAYDEN said: I beg to submit a case which I think of some interest—at least prospectively. It is an example of cerebro-spinal meningitis which proved fatal in the Mater Misericordiæ Hospital on the 1st of this month. It is the third case of the kind—not exactly similar in all its features, but in the main identical with the others—which I have witnessed within the last two months. It may be well, perhaps, to impress facts of this kind upon the professional mind, because it may be the first indication of an epidemic visitation of this formidable disease such as that which presented itself with such terrible features in Dublin some years ago. I have observed that within the last fortnight Dr. MacLagan, of Dundee, called attention to the great number of cases of this kind which had occurred in his practice; but several features of the cases that he noted were not similar to those in the case to which I am about to direct attention. A young man, aged twenty-four, a plasterer, of intemperate habits, having been out of employment for some time, was admitted into the Mater

Misericordiæ Hospital on the 27th of last month. He was apparently in general good health, putting aside the disease which he was then suffering from. He had, however, been subject, off and on, to attacks of pain in the head, as I learned from his friends. Ten years previously he had had an attack of this kind of a very aggravated character. He recovered and was able to pursue his trade. Three or four days before his admission he was suddenly attacked with severe pain in the head, accompanied by vomiting. He had a rigor, and when I saw him on the 29th of February, his condition was as follows:—He was more or less incoherent, and was muttering and giving irrelevant answers. His temperature, I regret to say, was not registered, but as indicated by the touch it was rather high. The pulse, however, was rather slow. The conjunctivæ were deeply injected, and the eye-balls were somewhat prominent. On his body—especially on the abdomen, the back, the posterior surfaces of both arms and elbows—were large blotches of irregular outline, and of a light purple or dark-red tint, varying in size from that of a sixpenny piece to that of a half-crown. These spots became pale under pressure of the finger, but on the pressure being removed the colour returned. He complained of weakness on the right side, and I found that his right arm was manifestly weaker than his left, and that his right leg was similarly affected—articulation, however, was not affected. I at once declared the case to be one of cerebro-spinal meningitis, and had his head shaved and blistered. On the following day he had improved somewhat, was able to speak to me collectedly, and looked better, while the pulse was more steady, and he declared that the pain in his head was less urgent. Unfortunately, however, these improvements were of very short duration, for on the next day he was still worse than on the first day, and quite comatose; the eyes actually projecting from the orbits, the pupils dilated, and the conjunctivæ deeply injected with purple blood. The right side, right arm and leg, were completely paralysed; the left side, however, was not affected. He could not swallow, and died in the course of that day. The patches, I should have observed, continued to the end. The brain and spinal cord are now before you, but have been changed in colour by the solution in which they were immersed. My resident pupil reports that he found in the cavity of the arachnoid five or six ounces of serum, and that the dura mater was firmly attached to the upper surface of the cerebrum in several places. The arachnoid at the base is opaque, but there is no lymph effused, nor is anything visible of the character of pus. General opacity and great vascularity are the features the brain presents. The choroid plexus is also vascular. The brain substance in one situation at the base is rather soft—the middle lobe, on the one side, being remarkably soft, as well as the posterior boundary of the fissure of Sylvius. The cord presents features of great interest. You observe that about the

middle of the dorsal region it has become perfectly diffuent and of the consistence of thick pus. Immediately below this, and at about the level of the seventh dorsal vertebra, the substance of the cord seems to have entirely disappeared—no doubt, during the process of removal, leaving only the theca. I examined a portion of this soft creamy substance under the microscope, and as well as I could ascertain by a cursory examination, it seems to be simply the cord substance. There were large cells and fibres, and fragments of fibres, but no pathological product whatever. The membranes of the cord were vascular before they became affected by the solution in which they were placed. I have no doubt the cord, already softened, sustained injury during removal. I may mention that about a month ago I met another case in private practice somewhat similar to this, with prominence of the right eye-ball, injection of the conjunctiva, and dilatation of the pupil. The patient had several attacks of severe rigor like those of intermittent fever, followed by very high temperature, but not by perspiration. In that case I could not make a *post mortem* examination. The third case to which I have alluded was that of a young man, aged twenty-one, who was admitted into the fever ward of the Mater Misericordiæ Hospital. He had severe pain in the head from the outset, and other symptoms of cerebro-spinal meningitis—such as partial incurvation of the spine, a feeling of soreness in the calves of the legs, and constant moaning. He died, and I had no opportunity of examining the body. Dr. MacLagan reports that what was most noteworthy in the cases that he saw was their close resemblance to cases of typhus fever. The spots, however, were not of the same tint as those of typhus. They were rather larger, and disappeared rapidly long before the subsidence of the fever. He makes no allusion to large blotches, nor to the proptosis which were the most remarkable features in two of the cases which I have referred to. One eye-ball only of the private case was prominent—whilst both eyes projected in the case from which the present specimen was taken. In addition to the dilatation of the pupils, there was a remarkable injection of the conjunctivæ with dark purple blood.

Amphoric Resonance in Pneumonia.—DR. NIXON said: It is unnecessary to be prolix as to the particulars of the case I am now about to exhibit, as it is in many respects an ordinary one. It consists of the thoracic viscera of a man, aged fifty-six, who was admitted into hospital on the 26th of February. He gave us the history of a prolonged rigor which he had had some eight or nine days previously; and at the time I examined him I found that he had solidified right lung. His pulse was very rapid, and his temperature ranged from 102° to 104°. His pulse was 120 and his respiration from 80 to 40. A peculiarity of the case from the start was the very remarkable condition of his tongue, which was extremely dry and brown, like that which occurs in advanced

stages of dysenteric ulceration. In the course of the case an amphoric resonance became developed at the base of the right lung to an extremely marked degree. In fact it was better marked in this case than ever I found it before. The day before the man's death we found that he had distinct pericardial friction-sounds. For the first few days there was sputum of a rusty character, but no expectoration after that; but as he had pericarditis I thought the case was one in which there had been pneumonia ending in the purulent infiltration stage. I make the remark because in *post mortem* examinations of cases of pneumonia which had ended in purulent infiltration, I have always found more or less evidence of pericarditis; sometimes it was only a small pasty exudation in the back of the auricle. In all those cases, too, there was a complication of pleurisy. I am not able to trace any connexion between the lesions of the lung and of the pleura, but merely say that in all the cases I found some evidence of pericarditis. The present case is a good example of that marbled condition of the lung which accompanies purulent infiltration. With reference to the amphoric resonance, I found quite sufficient evidence to account for it. Above, the lung is, as you can see, apparently solid and friable. As you go down, you find that the extent of the disease is much less marked. Towards the centre of the lower lobe of the same lung a portion of it crepitates, so that it evidently contains air. The explanation offered of this amphoric resonance is that it is due to an extension of inflammation from the root of the lung upwards or downwards, as the case may be, which consolidates that part of the lung and presses the air into the uppermost or furthest part. Consequently you have the centre of the lung solidified and all round that centre portions of the organ permeable to air; in other words, the phenomenon is due to imprisoned air in the lung. Dr. Hayden has shown that the old supposition that it is due to air in the pleura is wrong. Last year I treated an old woman who suffered from this form of pneumonia, characterised by the lung being excessively large and almost solidified. In that case the amphoric resonances existed for three or four fingers' breadth below the clavicle; and on the day of death it reduced to only a finger's breadth below the clavicle. On a *post mortem* examination I found the whole lung perfectly solid except a small portion at the top, about the size of a marble, which crepitated and evidently contained air. These cases show that the theory I have given is the correct one. The condition of the pericardium affords a very good example of recent pericarditis. There was but a small quantity of fluid in the pericardium, of a reddish-brown colour.

DR. HAYDEN.—This form of pneumonia has received the designation of typhoid pneumonia. It is most commonly met with in the apex of the lung. In that respect it differs from ordinary pneumonia, and is also most generally met with in debilitated subjects who had been

addicted to intemperance. I have met several examples of this, and some years ago I grouped those which, up to that date, I had observed, and published them in the *Dublin Medical Journal*. I then held, and still hold—and I am glad to find that Dr. Nixon's case tends to confirm my view—that the phenomenon of what I called muffled tympany is due to the imprisonment of air in the pulmonary tissue. In fact, it is the sound of static, or stagnant, air under percussion. The case is, moreover, of great interest in this—that the phenomenon occurred at the base of the lung. I have not personally observed a case in which it was not strictly confined to the upper lobe of the lung, and I have regarded it as an indication of most decidedly stimulating treatment—large doses of quinine and whiskey.

TREATMENT OF TYPHOID FEVER.

DR. WILLIAM PEPPER in a clinical lecture remarks that in the second week of the disease, when the abdominal symptoms of pain and diarrhœa have fully set in, one-quarter of a grain of nitrate of silver with one-twelfth of a grain of belladonna, and from one-sixth to one-half of a grain of the watery extract of opium, should be given in pill form three times a day, after meals. Under this treatment diarrhœa and tenderness diminish, and patients make very rapid recoveries. In most cases very little stimulant is used. Milk and beef-tea are the only articles of food he allows. Quinia is given with other tonics. Fever is reduced by frequent spongings of the skin of the entire body. When the high fever resists sponging, cool baths are employed. Indiscriminate bathing in typhoid fever is often extremely injurious. The best time for the use of the cold bath is in the early stage, during the first week or ten days. In cases where the temperature rises above 103°, and is not controlled by frequent spongings, large doses of quinia (quinia acts most admirably, both in this and other disease, as an antiphlogistic) diaphoretics, &c. When the fever in the subsequent stages runs high, it is the nature of a sympathetic fever, largely dependent on the amount of intestinal lesion; hence cold baths are less valuable at that time and attended with more risk. Nitrate of silver is used both with the hope of limiting the amount of the specific follicular catarrh of the intestines, and with the intention of favourably modifying the secondary sympathetic symptoms. The very best results are also obtained by the continued use of nitrate of silver in chronic inflammation of the bowels, and in gastric ulcer. The nitrate is given in doses of a third of a grain a couple of hours after meals. Dr. Pepper has cured *thirty-nine* out of *forty* cases of typhoid fever in which it has been employed by this nitrate of silver treatment. (*The Boston Medical and Surgical Journal*, October 25, 1877.)—*Practitioner*, Sep., 1878.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, M.D., F.K.Q.C.P.

VITAL STATISTICS

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, September 7, 1878.

Towns	Population in 1871	Births Registered	Deaths Registered	DEATHS FROM ZYMOTIC DISEASES							Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea	
Dublin, -	314,666	707	636	45	1	9	3	1	22	76	26·3
Belfast, -	182,082	543	352	—	—	19	—	5	17	39	25·3
Cork, -	91,965	211	155	—	3	—	—	7	4	8	22·6
Limerick, -	44,209	86	67	—	—	—	—	6	—	7	19·3
Derry, -	30,884	61	43	—	—	1	—	—	1	1	18·3
Waterford, -	30,626	78	54	—	1	—	—	2	—	1	23·0
Galway, -	19,692	51	54	6	—	—	—	1	3	—	35·5
Sligo, -	17,285	39	22	—	1	—	—	1	1	—	16·5

Remarks.

In Galway the mortality was very high ; in Dublin and Belfast it was high ; in the remaining towns it was moderate or low. The death-rate per 1,000 of the population living was 20·3 in London, 17·4 in Edinburgh, 20·2 in Glasgow, and 26·1 in Dublin (within the municipal boundary). Omitting the deaths of persons admitted into public institutions from localities outside the registration district, the rate of mortality in Dublin was 25·5 per 1,000. In two of the four weeks the death-rate was higher in the suburbs than in the city itself. Zymotic affections caused 192 deaths, being 17 more than in the previous four weeks, and 46 more than the average number of the corresponding period in the preceding ten years (146·2). Small-pox and whooping-cough were less fatal, but diarrhoea and scarlatina showed a considerable increase. Of the 22 deaths from fever, 4 were ascribed to typhus, 17 to enteric, and 1 to continued fever of undetermined type. At the close of the period there were 122 patients suffering from small-pox in the Dublin hospitals.

As regards zymotics in the other Irish towns, diarrhoea was fatal in Belfast, Cork, and Limerick; small-pox in Galway; fever in Belfast and Galway; scarlatina in Belfast; and whooping-cough was widely diffused. Small-pox continues to decrease quickly in London, where the deaths from this disease numbered only 28, compared with 62 and 87 in the two preceding periods respectively. In Dublin respiratory affections caused 70 deaths, the average number of the period in the previous ten years being 52·2. They included 45 from bronchitis (average = 35·4) and 14 from pneumonia (average = 9·1). The death-rate given above for London does not take account of the terrible loss of life caused by the sinking of the SS. "Princess Alice" off Tripcock Point, near Barking Reach on the Thames, on Tuesday evening, September 3. The registration of the sad deaths is delayed pending the giving of the usual Coroner's certificate.

METEOROLOGY.

*Abstract of Observations made at Dublin, Lat. 53° 20' N., Long. 6° 15' W.,
for the Month of August, 1878.*

Mean Height of Barometer,	-	-	-	29·740 inches.
Maximal Height of Barometer (on 1st at 9 a.m.),	-	-	-	30·333 „
Minimal Height of Barometer (on 13th at 10 30 p.m.),	-	-	-	29·290 „
Mean Dry-bulb Temperature,	-	-	-	59·8°
Mean Wet-bulb Temperature,	-	-	-	57·4°
Mean Dew-point Temperature,	-	-	-	55·3°
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·437 inch.
Mean Humidity,	-	-	-	85·5 per cent.
Highest Temperature in Shade (on 7th),	-	-	-	71·4°
Lowest Temperature in Shade (on 17th),	-	-	-	49·4°
Lowest Temperature on Grass (Radiation) (on 17th),	-	-	-	44·5°
Mean Amount of Cloud,	-	-	-	66·5 per cent.
Rainfall (on 22 days),	-	-	-	4·641 inches.
General Direction of Wind,	-	-	-	W., N.E., & E.

Remarks.

Very changeable weather, with frequent heavy rains, characterised this month. At the beginning an anticyclone lay over the British Islands, where the weather was very fine. But on the 2nd a cyclonic system appeared in the South of France, and travelled northwards across that country, reaching the English Channel and South of England on the 4th. It brought thunderstorms and heavy rains. During the 4th this depression travelled westwards, and was found off Valencia in Kerry on the 5th. The bad weather now extended to Ireland. This was the first of a series of atmospherical depressions which crossed the United Kingdom during the month, and which caused much broken

weather. On the 13th, 1·77 inches of rain fell at Kingstown, while 1·106 inches were registered in Dublin. On the 15th, at 4 p.m., a very severe thunderstorm burst over the S.E. portion of Dublin and its suburbs. Rain fell in torrents between Dublin and Kingstown, and there was some heavy hail in places. The rainfall was at Kingstown 2·28 inches, at Fitzwilliam-square ·457 of an inch, and in the Phoenix Park only ·104 of an inch. A peculiar feature of the storm was a succession of electrical discharges towards and from a magnificent mass of snowy white cumulus cloud, on which the sun was shining brightly. After the 17th the weather temporarily improved, but a depression in the S. caused an easterly gale with heavy rain in Dublin on the 23rd, and on the 29th a similar system caused equally bad weather. It is worthy of note that in a month remarkable for the number and intensity of its thunderstorms, the only one felt in Dublin was that on the 15th, already spoken of. On the night of the 12th a partial eclipse of the moon (=·590 of the moon's disc) was particularly well seen. The daily range of temperature was inconsiderable, being on the average scarcely 10°, but this was owing to the absence of much heat by day, the shade thermometer only once exceeding 70° (on the 7th). Fogs were noted on the 1st and 19th. High winds on several occasions.

PERISCOPE.

Edited by G. F. DUFFEY, M.D., F.K.Q.C.P.

THE TREATMENT OF FACIAL PARALYSIS.

DR. W. A. HAMMOND writes as follows (*St. Louis Medical Record*):—In no disease are prompt measures more necessary than in facial paralysis. A few weeks, and sometimes a few days' delay, is sufficient to diminish the conductivity of the nerve, and the contractility of the paralysed muscles, besides initiating a state of tonic rigidity in the latter most prejudicial to the attainment of a complete cure. The paralysis of the muscles supplied by the facial nerve, when induced by cold, I have heretofore found to be generally manageable by the use of strychnia, electricity, passive exercise, and the support to the affected side of the face given by a little hook placed in the angle of the mouth and fastened to the ear by an elastic band. These measures are by no means to be discarded, and one of them, strychnia, is to be even more energetically employed. The improved treatment to which I refer consists in the administration of strychnia in increasing doses to the point of rapidly—as rapidly, in fact, as is consistent with prudence—bringing the patient under its full physiological influence. For this purpose I make use of a

solution of the sulphate of strychnia, in the proportion of one grain to the ounce of water. Every ten minims of such a solution contain $\frac{1}{48}$ th grain of the medicine. Generally I begin with ten minims of this solution three times a day for the first day; the next day eleven minims are given three times, the next twelve, and so on, till the patient experiences a sensation of cramp or rigidity in the legs, or in the muscles of the back of the neck or of the jaw. Usually the cramp is first felt in the calves of the legs. The further administration is now stopped, and, if necessary, on the following day the solution is given as before, in doses of ten minims, and the doses are again run up to the extent of producing the muscular cramp.—*Lond. Med. Record*, Aug. 15, 1878.

SENSIBILITY IN LOCOMOTOR ATAXY.

E. REMAK (*Arch. f. Psych.*, VII., H. 3) observed the following new phenomena in the case of a man afflicted for years with ataxia. On searching for the minimum current just sufficient to produce the feeling of formication, on applying the faradic brush to the skin of the thigh he found that the sensibility, at first quite acute, soon became exhausted. This fatigue necessitated such an increase in the strength of the current for perception that finally the current, in order to be at all perceptible, had to be quite painful. This peculiar, ready exhaustibility of the tactile nerves existed also for the sensations of contact, pressure, and temperature. Since Remak found this condition likewise in the plantar skin, he suggests that it may be the cause of the frequent complaint in ataxia of an elastic sensation underneath the feet.—*Amer. Journ. of Nervous and Mental Diseases*.
R. A.

TREATMENT OF SPINAL CURVATURE.

DR. COOVER, of Harrisburg, Pa., recommends the use of silicate of soda instead of plaster-of-Paris in the application of Sayre's jacket to patients suffering from spinal curvature. It sets nearly as quickly as plaster-of-Paris, does not crack or crumble, can be readily reapplied, and allows cleansing of the body frequently. The merino jacket is first applied, then a muslin roller three inches wide, and the surface is painted over with a soda solution. A cap of light tin, muslin-covered and wet with the solution, is put over the crests of the ilia, and a similar brace from over this cap to the axillæ. Strips of muslin, covered with the solution, pass downwards over the whole bandage. Lastly, a roller and a coating of soda are applied. When dry, the corset is cut open along the spine and an inch removed from each edge. It is then fitted with laces or straps and is ready for use. V. P. Gibney, M.D., of the Hospital for the Ruptured and Crippled, New York, objects to the practice of suspension in cases in which meningo-myelitis is in active progress. Nature's efforts at repair must be respected, and he knows of no better mode of meeting the indica-

tion than by accepting the situation and fitting an apparatus simply as a support. This consists of two horizontal bars—the one extending from axilla to axilla posteriorly, the other parallel and grasping the ileo-costal spaces just above the iliac crests—while these bars are connected by four vertical ones—two from axilla to crest and one on either side of the spinal column, about two and a half or three inches apart. This is covered with shaved sheepskin, and lined with muslin, of which like material fronts are made to lace along the median line anteriorly. The brace is lengthened to suit the locality of the caries, and if the cervical or superior dorsal vertebræ be the seat of disease, a steel bar is attached to the body-support under consideration, passing from the lower horizontal bar at its centre vertically to the upper one, curving to clear the occiput, and terminating in a small bar, to which chin and occipital straps are attached. This supports the weight of the head, relieving the column of the pressure.

W. T.

CAFFEINE AS A DIURETIC.

PROFESSOR GUBLER asserts that caffeine and the other alkaloids analogous to it, such as theine, mentheine, &c., are excellent diuretics. They act very rapidly, and are particularly useful in cases where other medications can no longer be tolerated. He gives these alkaloids in doses of from four to eight grains a day, in some syrup and medicinal water.—*Le Progrès Méd.* and *N. Y. Med. Rec.*

ON THE ORIGIN AND IMPORT OF THE LIQUOR AMNII.

THE following may be read with interest in connexion with the admirable account of Professor Gusserow's experiments on the functions of the organs of the foetus *in utero* which was given in this Journal last month by Dr. W. J. Smyly (p. 197):—Professor Zuntz has found that in rabbits matters may pass from the maternal blood into the liquor amnii without having traversed the body of the foetus, showing that, at all events, a part of this fluid must be derived directly from the mother. If a saturated solution of sulphindogate of soda be injected into the blood-vessels of a pregnant rabbit, and, after death, the foetus be carefully removed without rupture of the membranes, it is seen that the liquor amnii has a faint but distinct blue colour, similar to that of the peritoneal fluid of the mother. The urine, kidneys, and liver of the mother are, of course, intensely blue, while the glands of the foetus and the urine in its bladder are perfectly colourless. Only in the stomach is a faintly blue fluid contained—doubtless, swallowed liquor amnii. Considering the great readiness with which the kidneys and liver separate indigo-carmin from the blood, it is inconceivable that these organs could have been colourless if the pigment had been present in the blood of the foetus; and the colourless urine shows that the liquor amnii is, at all events, not altogether produced by the

fœtal kidneys, but from the maternal blood. The existence of liquor amnii in the stomach makes it probable that the fœtus derives some of its nourishment through the digestive organs. If, previous to the injection of indigo-carmin, the uterus be opened and the fœtus be killed by injection into its body, by means of a Pravaz's syringe, of some drops of a strong solution of caustic potash, the liquor amnii is found of the same blue colour as if the fœtus were alive. Here, of course, any share of the fœtal organs is excluded, and the pigment must have been derived directly from the maternal blood. This latter experiment, which presents many difficulties, has been only once successfully performed.—*Pflüger's Archiv*, XVI., 548. J. M. P.

SALICYLIC ACID IN YELLOW FEVER.

THE *Berliner klin. Wochenschrift* of September 2 publishes part of a letter written some time ago to Professor Heyden of Dresden, by Dr. Hartwig Bünz of Savannah, and which is of special interest at a time when yellow fever is raging, as it now is, in the Southern States of North America. Dr. Bünz was called in August, 1876, to an epidemic of yellow fever in Savannah, State of Georgia, and after trying the stock remedies of the country—emetics, purgatives, starving, &c.—without effect, and finding that the fever was of an intermittent type, he resolved to make an experiment with salicylic acid. He gave adults a dose of one drachm and a half, either in solution, in capsules, or rubbed up in the sugar, and if the stomach rejected it he gave a double dose per rectum. The results were excellent. The temperature, which ordinarily ranged between 104° and 106° Fahr., fell to 100° or 100·5°, and in many cases to 99°, and the pulse from 120, or higher, almost to normal; and of 179 patients thus treated, of both sexes and all ages, *only four* died. Dr. Bünz made the observation that the patients treated with salicylic acid complained far less of pains in the spine and limbs than those treated with quinine, and he himself, when afterwards laid up with the fever, and taking a large dose of salicylic acid very early in the attack, cannot remember that he suffered from these pains. He regards the acid as the most powerful antipyretic against yellow fever, both of the intermittent and remittent type, but has no experience of it in the continuous form, over which, as is well known, quinine exerts very little, if any, influence.—*Med. Times and Gaz.*, Sept. 21, 1878.

ICE IN DIPHTHERIA.

DR. BLEYNE, a Professor at the Limoges École de Médecine, expresses in the *Revue Médicale* (September 2) his surprise that so many deaths should still take place from diphtheria, when a simple remedy has during the last twenty years proved almost invariably efficacious in his hands, and in those of several other practitioners. This is the administration

of ice, the patient keeping a small piece of it in his mouth, which is replaced as soon as melted. When asleep, some is still inserted into the mouth, which may be done without waking the child. The relief is immediate, but the false membrane takes from two to seven days to disappear. If ice cannot be got, very cold water may be substituted, giving it twenty or thirty times in the hour. While inserting the communication from so veritable a source, the editor of the *Revue* seems a little puzzled at so efficacious a remedy having made so little way in so long a period.—*Med. Times and Gaz.*, Sept. 21, 1878.

HOW TO RESTORE THE APPARENTLY DROWNED.

UNDER this heading Dr. Howard has issued the following directions for carrying out what he terms the "direct method." 1st. *Instantly* turn the patient downwards, with a large firm roll of clothing under the stomach and chest. Press with your weight two or three times, for four or five seconds each time, upon the patient's back, so that the water is pressed out of the lungs and stomach, and drains feebly downwards out of the mouth. Then 2nd. *Quickly* turn the patient face upwards, the roll of clothing put *under his back just below the shoulder-blades*, the head hanging back as low as possible. Place the patient's hands together above his head. Kneel with patient's hips between your knees. Fix your elbows against your hips. Now, grasping the lower part of the patient's chest, squeeze the two sides together, pressing gradually forward with all your weight, for about three seconds, until your mouth is nearly over the mouth of the patient; then, with a push, *suddenly* jerk yourself backwards. Rest about three seconds, then begin again. Repeat these bellows-blowing movements so that the air may be blown into the lungs about eight or ten times a minute. *Remember* the above directions must be used *on the spot*, the instant the patient is taken from the water. A moment's delay, and success may be hopeless. As soon as the water is pressed from the lungs, all clothing should be ripped away from the chest and throat. In making the pressure either for the removal of water, or for breathing, increase it *gradually* and thoroughly, and *suddenly* let go with a jerk. With women and children use less force. *Do not stop these movements under an hour* unless the patient breathes. Be careful not to interrupt first short natural breaths. If they be long apart, carefully continue between them the bellows-blowing movements as before. After breathing is regular, keep patient warm with blankets, rubbing with warm hands, &c. Prevent crowding around patient; plenty of fresh air is all-important. Spirits and water only, in occasional small doses, may now be given—if hot so much the better. After this encourage quiet and sleep. (*Lancet*, Aug. 10, 1878).—*Practitioner*, Sept., 1878.

THE PUBLIC HEALTH (IRELAND) ACT, 1878.

THE passing of the Public Health (Ireland) Act of 1878 must be looked upon as the closing event of a decade of experiments in sanitary legislation and administration.

Before referring more particularly to the statute under consideration it will be neither unprofitable nor uninteresting to consider briefly the series of events which have led up to the passing of what may be termed a sanitary code for Ireland.

Previous to the year 1866 there was nothing of the nature of a sanitary *system* existing in any part of the United Kingdom. There were many Acts of Parliament intended to promote the public health, but all, or nearly all, were of a permissive character, and in many places there were no authorities for the carrying out of these powers. In the year 1866, during the panic caused by the cholera epidemic, a general Act, known as the "Sanitary Act of 1866," was passed, which provided sanitary authorities for every place in the United Kingdom, and, therefore, provided means for the enforcement of all the Acts existing previous to that date. This Act was of a permissive character, and almost completely failed to fulfil its objects. In the year 1867 the British Medical Association met in Dublin, under the presidency of Dr. Stokes. It was from the action of this Association at its Dublin meeting that sanitary reform really took its origin. A resolution was there passed inviting the co-operation of the Social Science Association in the promotion of a scheme for sanitary reform. This invitation having been accepted, and a joint committee of the two associations appointed, a memorial was presented to the Government of the day (Lord Derby was then Prime Minister), praying that a Royal Commission might be issued to inquire into all matters connected with sanitary reform. The memorial was supported by an influential deputation which waited on his Grace the Duke of Marlborough, the then Lord President of the Council (now Lord Lieutenant of Ireland), on May 22nd, 1868. The Royal Commission was issued on November 24th of the same year, under the presidency of Lord Northbrook. On the accession of Mr. Gladstone's Administration this Commission was reconstituted, with Sir Charles Adderley (now Lord Norton), as chairman, with restricted powers. Nevertheless, the Commission worked diligently, collected evidence from all quarters, and made an exhaustive report, recommending:—

"Consolidation and amendment of existing laws.

"Single and uniform local authorities for all sanitary purposes.

"One central authority for administering sanitary and local government matters, and the poor-law (including the registration and veterinary departments of the Government).

"Power for central authority to combine and alter districts.

"Local authorities should appoint:—

"1. At least one officer of health, being a legally qualified medical practitioner, or possessing such other qualification in medical science as shall be declared by the central authority to be satisfactory; in rural districts the medical officers of health, as a rule, being the poor-law medical officers acting in their respective medical districts; and when this is not practicable or expedient, the relation of the medical officers of health and the poor-law medical officers to each other being arranged by the local health authority with the approval of the central authority.

"2. At least one inspector of nuisances.

"3. A clerk.

"4. A treasurer.

"5. A surveyor.

"6. Other minor officials } when necessary.

"The officers of every local authority to be appointed and removed by such authority, except the medical officer of health, who should be removable only with the consent of the central authority."

The commission further recommended:—

"That every medical officer of health should be authorised to call for reports from any inspector of nuisances in his district, and that every report of an inspector of nuisances should also be made to the medical officer."

With regard to the central authority it was recommended:—

"That there should be a chief medical officer.

"That all local health districts should be from time to time visited by inspectors of the central authority.

"That a limited number of special inspectors and referees, with engineering, medical, chemical, or legal knowledge should be required by the central authority, some to be employed permanently, and some on special occasions."

It will be observed that consolidation and amendment of the existing sanitary law were placed as the *first* essential to sanitary reform.

The report included "suggestions for a new statute," which were really headings of clauses for a complete sanitary code. The report with its suggested new statute were laid before Mr. Gladstone's Government, and Sir Charles Adderley introduced a bill into the House of Commons embodying the proposals of the commission, but as he was then a private member, and his party out of power, his bill was not proceeded with. In 1872 Mr. Stansfeld introduced the Public Health (England) Bill, which became law the same session. This Act did little more than make

the permissive law already existing compulsory, and was so unsatisfactory that two years after its provisions had to be supplemented by the "Sanitary Laws Amendment Act." In 1874 the present Government carried a measure for Ireland bringing Irish legislation up to the same stage as that of England, but still leaving in existence the confused mass of laws of former days. At this time, however, an important promise was given by the Government, that consolidation and complete amendment of the sanitary laws for both England and Ireland would be immediately undertaken. This promise was fulfilled for England in 1875, and the following year a bill for a similar purpose was introduced for Ireland, but not proceeded with. In the following year, 1877, it was referred to a Select Committee, and must have passed but for obstructive opposition. It has now become law under the title of "The Public Health (Ireland) Act, 1878." It will thus be seen that—after ten years of tinkering—the *first* principle of sanitary reform, as suggested by the British Medical and Social Science Associations, and recommended by the Royal Sanitary Commission, has been carried out. We are glad to say that it has been so carried out that in future it will be in the power of the Government by good administration to fulfil nearly all the recommendations of the Commission. It remains to be seen how far the Government departments and local authorities concerned in sanitary administration are willing to reform themselves, so that they may be able efficiently to carry out the amended laws.

We shall now proceed to call attention to the principal provisions of the new Act, and their relation to the previously existing state of things. As many of our readers are engaged in the Public Health Service of Ireland, we need scarcely refer to the fact that until the passing of the present Act the various provisions of sanitary law were contained in twenty different Acts of Parliament. The most familiar statutes to medical officers of health were the Diseases Prevention Act, 1855; the Nuisances Removal Act, 1855; an Act to amend the two preceding Acts; the Nuisances Removal Act of 1863; the Nuisances Removal Act of 1866; the Sanitary Act of 1866; the Public Health Act of 1874. All these Acts have been repealed. Besides these, all the Burial Grounds Acts, the Common Lodging-houses Acts, the Sewage Utilisation Acts, and the sanitary sections of many other Acts, have been repealed. All the useful clauses in these Acts have been re-enacted with or without amendments, and many new clauses have been added.

In a paper read at the Belfast meeting of the British Association in 1874, the writer of this article laid down the requirements of sanitary legislation to be as follows:—

- "1. A codification, consolidation, and amendment of existing laws.
- "2. Convenient areas for administration, with easily workable sub-districts.

"3. Uniform authorities, without clashing of jurisdiction.

"4. A complete executive organisation.

"5. Constant supervision by central authority.

"6. Security for a certain amount of independence for the local officers from the local authorities."

The first of these requirement has at last been fulfilled by the new Act. The second—namely, convenient areas for administration—already exists in the Irish poor-law unions, and the sub-districts are provided in the dispensary districts. The third—uniformity of authorities—has not yet been attained, as even the new Act, by its 3rd section, continues the absurdity of urban and rural sanitary authorities, and by section 150 secures that the authorities in urban districts *must* clash with their rural neighbours whenever the Local Government Board issues special orders for the prevention of the spread of epidemics. The fourth requirement is to a large extent secured by the appointment of the medical officers of dispensaries as "Medical Officers of Health," which (by section 11) is the title they are in future to bear, instead of the nondescript appellation "Sanitary Officer," which was imposed upon them under the Act of 1874. Inspectors of nuisances and "clerks" to the sanitary authority are also provided for by the Act. The fifth requirement—namely, *constant* supervision by the central authority—is unnoticed in the Act. Many attempts were made to have a clause introduced into the bill making such supervision compulsory on the Local Government Board, but these efforts failed in consequence of the Government already possessing the power to provide such supervision if necessary. Unless the fifth requirement is met, the rest of the provisions of the Act will, to a great extent, prove inoperative. The sixth requirement has been met by a provision, that the "medical officer of health" cannot be removed by the local authority without the consent of the Local Government Board; yet a sufficient amount of independence cannot be secured without proper and constant supervision by the central authority.

We shall now proceed to make some observations on the sections of the Act.

The Act is divided into *eight parts*.

Sections 1 and 2 are preliminary, and declare the short title of the Act to be "The Public Health (Ireland) Act, 1878," and define the terms used in the Act.

PART I.

Sections 3 to 14 concern "sanitary authorities," defining their districts to be urban and rural—the urban being towns having populations over 6,000, towns under special Acts, and such other towns as the Local Government Board^a may by provisional order constitute. The urban sanitary authority is the town council or town commissioners. Urban

authorities have power to delegate their authority to committees composed of members of their own body. The rural districts are the poor-law unions, and the authorities for these districts are the poor-law guardians. These sections also provide for the vesting of property in sanitary authorities, the union of districts, and the formation of the governing bodies of united districts.

The most important of the sections just noticed is section 11, which, as it materially affects the interests of the medical profession in Ireland, we give in full as follows:—

“11. Every medical officer of a dispensary district shall be a sanitary officer for such district, or for such part thereof as he shall personally be in charge of, under the title of medical officer of health, with such additional salary as the sanitary authority thereof may determine, with the approval of the Local Government Board; and every sanitary authority, whether urban or rural, shall appoint such other sanitary officers, including a medical superintendent officer of health when deemed necessary, as the Local Government Board shall in each case direct, with such salaries or additional salaries as the said sanitary authority shall determine, with the approval of the Local Government Board; and the said Board shall assign to the medical officers of health, and to the other sanitary officers, if any, and to the medical superintendent officer of health, if such an officer be appointed for the sanitary district, their respective duties and functions in the discovery or inspection or removal of nuisances, in the supply of pure water, in the making or repairing of sewers and drains, or in generally aiding the administration of the sanitary laws within the district.

“Provided that with regard to salaries or additional salaries whereof any portion is to be recouped to any local fund from moneys voted by Parliament, the amount of any new salary and the proportion between any existing salary, and the addition thereto, shall be approved by the Commissioners of Her Majesty's Treasury.

“Every such salary or additional salary so determined or approved shall be payable from such local fund as the Local Government Board shall indicate as properly chargeable therewith, and such part thereof as Parliament shall from time to time determine shall be recouped to such local fund out of the moneys to be voted by Parliament; and the Local Government Board shall have the same powers with regard to the qualification, appointment, duties, regulation of salary, and tenure of office of every sanitary officer as they have in the case of the medical officer of a dispensary district.”

Those of our readers who are but too familiar with section 10 of the Act of 1874, under which the dispensary medical officers were appointed and paid as sanitary officers, will at once perceive how much more favourable the above clause is than that which it replaces. The dis-

dispensary officer has a distinctive title, "Medical Officer of Health," thus preventing the possibility in future of his being mistaken for or treated as an inspector of nuisances or common clerk to the sanitary authority. The salary of the medical officer of health will not in future be fixed according to an arbitrary scale of "one-fourth" of his salary as a dispensary medical officer, but may in future be in proportion to the duties, position, and responsibilities which have been imposed upon him. The last few lines of the section provide, that "the Local Government Board shall have the same powers with regard to . . . tenure of office of every sanitary officer as they have in the case of the medical officer of a dispensary district." This provision, if properly administered by the Local Government Board, secures sufficient independence for all the local officers, including the medical officer of health, from any petty annoyance from local authorities.

PART II.—SANITARY PROVISIONS.

Sections 15 to 29 refer to sewers, and provide for vesting of sewers in the sanitary authority, and for purchase, maintenance, and making of sewers. Section 19, adapted from the English Act, contains a new and important provision against the contamination of rivers by sewage. Section 22 makes it compulsory on urban sanitary authorities to keep a map of the sewers of their districts. The other sections relating to sewers make more effectual provisions for the compulsory sewerage of houses, &c. Sections 30 to 34 make more effectual provisions for the disposal of sewage; and 35 to 37 for carrying sewage works without the districts of the authorities in whom the sewers are vested. Sections 38 to 43 are practically new enactments, and give power to sanitary authorities (especially urban authorities) for regulating the construction of houses and arrangement of streets within their districts. Sections 44 to 51 contain enactments relative to waterclosets, privies, and earthclosets, and provide that in future houses shall not be built or rebuilt and inhabited without such accommodation. Sections 52 to 60 refer to scavenging and cleansing. These sections are most important, and, if stringently enforced by the Local Government Board, will compel town authorities not only to cleanse streets, but also to systematically remove night soil and refuse from houses within their districts, and they also provide that the sanitary authorities shall not themselves create nuisance by accumulating offensive matters collected from streets and houses. This is a most important provision so far as the city of Dublin is concerned, where the most gigantic nuisances are the Corporation scavenging depôts. Sections 61 to 76 contain provisions for the supply of water to localities and houses, and for the extinguishing of fires; also for preventing the pollution of sources of water supply, and the closing of polluted wells. Sections 80 and 81 refer to gas supply. Sections 82

to 86 provide more effectually for the supervision of cellar dwellings. Sections 87 to 99 contain provisions relative to common lodging-houses; these add little to the powers of the Acts previously in force. Sections 100 and 101 provide for the regulation of houses let in lodgings. Section 102 gives power to sanitary authorities to provide clocks, which seems rather an anomaly in a sanitary Act. Sections 103 to 106 give powers to sanitary authorities to regulate slaughter-houses and provide markets; these sections are, we regret to say, to a great extent permissive. Sections 107 to 127 concern nuisances, the most important alteration being that in the definition of the term nuisance in section 107. This is so important that we give it in full:—

“107. For the purposes of this Act, the following shall be deemed to be nuisances,—

“1. Any premises in such a state as to be a nuisance or injurious to health:

“2. Any pool, ditch, gutter, watercourse, privy, urinal, cesspool, drain, or ashpit so foul or in such a state as to be a nuisance or injurious to health:

“3. Any animal so kept as to be a nuisance or injurious to health:

“4. Any accumulation or deposit which is a nuisance or injurious to health:

“5. Any house or part of a house so overcrowded as to be dangerous or injurious to the health of the inmates, whether or not members of the same family:

“6. Any factory, workshop, or workplace not kept in a cleanly state, or not ventilated in such a manner as to render harmless as far as practicable, any gases, vapours, dust, or other impurities generated in the course of the work carried on therein that are a nuisance or injurious to health, or so overcrowded while work is carried on, as to be dangerous or injurious to the health of those employed therein:

“7. Any fireplace or furnace which does not as far as practicable consume the smoke arising from the combustible used therein, and which is used for working engines by steam, or in any mill, factory, dyehouse, brewery, bakehouse, or gasworks, or in any manufacturing or trade process whatsoever; and

“Any chimney (not being the chimney of a private dwelling-house) sending forth black smoke in such quantity as to be a nuisance.”

It will be observed that the phrase of the old Act (1866), “nuisance and injurious to health,” has been changed into “nuisance or injurious to health.” Thus it apparently becomes no longer necessary to prove that the nuisance is “dangerous to health.” The proof of a nuisance is quite sufficient for conviction, and thus a great loophole for the escape of offenders has been closed.

Sections 128 to 131 refer to offensive trades, and contain nothing new

of importance. Sections 132 to 136 refer to unsound meat, &c., and in some trifling particulars amend the laws relating to these matters. Sections 137 to 148 contain provisions concerning "infectious diseases." Several important amendments have been introduced into these provisions. Thus section 139 (corresponding with section 23 of the Act of 1866) gives power to a sanitary authority to provide a proper place for disinfection; but it, in addition, compels the authority to disinfect free of charge, if once a disinfecting apparatus has been provided. Lastly, it gives power to a sanitary authority to provide for the conveyance of articles to be disinfected to the place for disinfection. Section 140 compels every sanitary authority to provide suitable carriages for the conveyance of persons suffering from infectious diseases to hospital, and provides that the cost of such conveyance shall be paid by the sanitary authority. The corresponding section of the Act of 1866 was permissive, and therefore inoperative. Section 141, which provides for the removal of persons to hospital who are "without proper lodging or accommodation," has been amended from the section of the Act of 1866 by the omission of the absurd provision that the person to be compulsorily removed should be lodged in a room occupied by "more than one family," the restriction being now that the room can only be occupied by persons suffering from the same illness as the infected person. If any healthy person occupies the same apartment, the sick person can be removed by a magistrate's order. Section 142 (corresponding with sections 25 and 38 of the Act of 1866), providing "penalties for exposure of infected persons or things," has received important amendments, by making it penal to convey without proper precautions the body of a person dead of an infectious disease, or to wake the body of a person who has so died. It will be seen that these two amendments will remove some of the most fruitful sources of contagion. Section 145 provides penalties on "persons letting or taking houses making false statements as to infectious diseases." According to the Act of 1874, a person letting a house was only subject to the penalty herein imposed, but now the penalty is extended to persons hiring lodgings. Thus in future a person cannot introduce convalescents from scarlatina, &c., into seaside lodgings without the consent of the lodging-house keeper, if he or she takes the trouble of putting a simple question. Section 146 is a new enactment, making it penal to send a child to school who has been suffering from an infectious disorder, or has been resident in a house where an infectious disease has prevailed during the previous three months. Sections 149 to 156 refer to exceptional precautions to be taken in time of epidemics for the "prevention of the spread of infectious diseases." Section 156 contains an important provision, that persons who are *not* paupers may be sued for the expenses of maintenance in any hospital provided at the expense of the sanitary

authority. Sections 157 to 159 refer to mortuaries, and are much the same as the previous law, excepting the concluding portion of section 158, which provides that—

“The body of any person who has died of any dangerous infectious disease in any hospital or place for the treatment of the sick shall not be removed from such hospital, until removed direct to a mortuary or cemetery, and any person violating, or any officer of a hospital or other person who knowingly permits the violation of this provision, shall be liable to a penalty not exceeding five pounds.”

Sections 160 to 199 refer to burial grounds, and are much the same as the previously existing laws, except the following important addition in section 191:—

“The clerk or secretary, or registrar to every burial board and cemetery company, or other authority having charge of any burial ground, shall make or cause to be made, at such times and in such manner as the Local Government Board may direct, a return of the names, addresses, dates of death, and causes of death, so far as ascertained by him, of the persons whose bodies have been interred in such burial ground, to the registrar of the district in which such persons resided at the dates of their deaths respectively; and such clerk, secretary, or registrar of each such cemetery company shall be paid therefor by the sanitary authority during the period he is required to perform such duty such sum as the Local Government Board may direct, not being more than three pence for each separate entry of death.”

PART IV.—GENERAL PROVISIONS.

Sections 200 and 201 refer to contracts. Sections 202 to 213 refer to purchase of lands. Sections 214 and 215 refer to the issue of provisional orders by the Local Government Board. Sections 216 to 218 refer to arbitrations relative to property. Sections 219 to 225 refer to byelaws of sanitary authorities, and confer *ample powers* to local authorities to provide suitable rules for the sanitary regulation of their districts.

PART V.—FINANCIAL.

This part is of little interest to medical men as such, but removes all excuse from sanitary authorities as to the providing of funds for sanitary purposes.

PART VI.—LEGAL PROVISIONS.

This part is also of little medical interest (except section 258), but will materially shorten legal proceedings in future, so far as penalties for sanitary neglect are concerned. Section 258 provides that—

“Every officer of a sanitary authority shall attend and assist in any prosecution instituted by such authority on receipt of an order from such

authority so to attend: Provided always, that if a medical officer of the sanitary authority shall so attend and assist, he shall be entitled to remuneration from the sanitary authority at such rate as the Local Government Board shall approve, unless it shall have been agreed that the duty of affording such attendance and assistance shall be included in his salary, or that his whole time shall be occupied in the discharge of the duties of his office; and such payment shall be deemed to be expenses incurred by the sanitary authority under this Act, and may be recovered as part of the costs of the prosecution."

Thus dispensary medical officers will in future be relieved from gratuitous attendance at courts of law to give evidence in sanitary prosecutions, unless they have large salaries or *agree* to attend and give evidence—which we strongly advise them not to do, unless they desire to be called as witnesses on every possible occasion. This clause will be a wholesome check on those who call for medical evidence in the most insignificant cases.

PART VII.—MISCELLANEOUS PROVISIONS.

None of the sections of this part are of much interest to the medical profession.

PART VIII.—SAVING CLAUSES AND REPEAL OF ACTS.

The saving clauses are not of much moment to our profession, except so far as they preserve *any* (if there be any) privileges which medical officers enjoyed (!) under previous Acts. The repeal of Acts we have already dealt with.

We have thus tried to summarise as concisely as possible the provisions of this important Act, so far as they materially affect the interests or duties of the medical profession. We must congratulate Her Majesty's Government, and the Attorney-General for Ireland in particular, for having so far furthered a considerable proportion of the programme necessitated by the adoption of such an ambitious motto as "*Sanitas sanitatum, omnia sanitas.*"

T. W. GRIMSHAW, M.A., M.D.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XI.—*Fractures of the Ribs: an Examination of the Theory of Petit.** By EDWARD H. BENNETT, M.D., Univ. Dubl., F.R.C.S.I.; Surgeon to Sir P. Dun's Hospital; Professor of Surgery, Trinity College, Dublin.

THE subject of fracture of the ribs appears at first sight trite, and hardly likely to afford sufficient interest, or any novelty, to repay its study; but to this fact, I believe, are due the errors current in surgical writings with regard to it.

In spite of Malgaigne's criticism, the theory of Petit still remains accepted absolutely, and forms the basis of the descriptions in our text-books, in Erichsen, Gross, Poland, and a host of others. None seem to doubt its truth, or to remember that when Petit wrote his "*Maladies des Os*," in which the theory first saw light, his experience was not so great as to command an unhesitating belief in his views. Two things seem to have mainly rendered his theory so enduring—the simplicity of his classification (1. *Fracture en dedans*; 2. *Fracture en dehors*), and the plausible demonstration of its application on the isolated bone. Not only do the ideas of Petit rule the opinions on the pathology of these injuries, but from him is derived a faulty prognosis also. I shall return to this matter presently. His views are, I think, pretty clearly set forth in the following passages, which may be taken as representative of the

* Read before the Dublin Biological Club, Tuesday, October 8, 1878.

teaching of our modern text-books. Professor Gross^a writes as follows:—"The ribs being firmly connected to the costal cartilages in front, and to the vertebræ behind, it is impossible for them to undergo any shortening when they are fractured, or for the ends of the fragments to overlap each other, as in fracture of the long bones. Derangement, however, may take place in almost any other direction, although the angular is by far the most common, and this may be either outwards or inwards, according to the manner in which the injury was inflicted, the latter being usually produced by direct violence, the former by indirect. It is seldom, however, that more than one end of the bone is displaced in this direction at the same time." It is hard to follow the author when he describes in the last passage the formation of angular displacement by a single fragment—the forming, in fact, of an angle by one line, right or curved.

Mr. Poland, in Holmes' "System of Surgery,"^b says:—"Here (in fractures occurring at a distance from the seat of injury, hence called indirect fractures) the ribs generally give way about their middle or most convex part, at a point intermediate between the two opposing forces, as, for instance, in those cases where the chest is squeezed against a wall or a post, or where the wheel of a cart or vehicle passes over the chest; in such fractures three or more ribs are involved, and the fractured ends are often driven outwards."

Both these descriptions are almost paraphrases of Petit's,^c so that to quote his at length would be simply tedious. I shall endeavour to prove that the views they contain as to fractures from indirect violence are far from being correct. With the opinion that a direct blow may break a rib or ribs where it strikes, and that such force tends, if continued, to drive the fragments inwards, no one can hesitate to agree. I maintain that the pretty illustration of a rib breaking as an over-bent bow, when we grasp its ends and press them together, conveys a false idea of the mode of occurrence of indirect fractures in the great majority of injuries of the living thorax.

Many fractures of the ribs are observed in practice from indirect forces such as are described in the passages I have quoted, but it is familiar to every practical surgeon, I believe, that nothing is more difficult than to localise the seat of fracture exactly by any visible

^a System of Surgery. Vol. II., p. 163.

^b Vol. II., p. 555.

^c Maladies des Os. T. II., p. 75.

or palpable deformity of the kind that must exist if angular deformity, salient outwards, is the normal character of these injuries. Again, in extreme injuries of this class we should expect, in some rare instance at least, to find a fragment pierce the skin covering the chest, but no record of this complication exists. Compound fractures of the rib, compound by skin wound, are stated to be observed only as the result of gunshot or similar wounds. In extreme injuries, on the contrary, laceration of the lung is frequently seen, laceration by the broken fragments of rib, in spite of the theory, passing into the chest.

Petit indeed holds, in discussing the question of prognosis, which forces itself on me here, that the fracture from direct violence is the more dangerous of the two forms. "*Celle qui se fait en-dedans, est plus fâcheuse que celle qui se fait en-dehors.*" He says "that those which give great pain with difficulty of breathing, those which prick the intercostal nerves, or wound their accompanying vessels, are the most dangerous." But I believe that this most fatal group includes most of the accidents resulting from crushing of the chest wall—buffer injuries and the like, where fracture from indirect violence takes place.

In the following passage Mr. Erichsen* goes further than Petit in stating his doctrine with regard to the second group:—"The fracture occurs from indirect violence, the fore part of the chest being forcibly compressed, so that the rib is bent outwards, and thus snaps. When the injury is the result of direct violence, and the broken fragments are forced in, the pleura, lung, liver, or diaphragm may be wounded, thus giving rise to the most serious fatal consequences, such as hæmorrhage, emphysema, and inflammation of the parts injured. When it is occasioned by indirect violence, as the fracture takes place in a direction outwards, the thoracic organs may be contused and thus injured, but they are not liable to be punctured by the fragments." Here we have the hobby ridden hard with a vengeance. Petit, while making the rib break in bending as a bow overstrung, still leaves himself a way of escape from the strict limit imposed by his theory in describing his unnumbered class "*les plus dangereuses.*" Mr. Erichsen has no such loophole in adopting the extreme view that indirect force can act in one direction only on the chest wall, and that the broken fragments cannot wound the lung.

By the examination of a large collection of fractures of the ribs

* Science and Art of Surgery. Vol. I, p. 310.

we should be able to test these statements. If fractures from indirect violence are the least fatal group, specimens obtained without any thought of selection must be, many of them, of this class.

I have already stated my opinion that angular projection of a fractured rib is a rare clinical phenomenon—one that I have never seen. The collection of fractures of the rib in the Pathological Museum of Trinity College, formed without selection, obtained, many of them, by myself during *post mortem* examinations and in ordinary anatomical dissection, number, exclusive of cases of *fragilitas ossium*, seventy. Some are recent specimens, the result of fatal injuries; the great majority are united fractures. In this series not a single instance of angular deformity salient outwards is to be found.

There are in many specimens irregularities of the external surface of the rib, caused by overlapping, in some cases of the vertebral, in others of the sternal fragment; but no matter which overlaps, the result is the same. If the curve is altered, it is so changed that a slight bowing inward, or rather flattening of the normal curve is established, with perhaps a change in the even course of the spiral twist of the rib; or again, the fragments are united, so as to encroach on the upper or lower intercostal space. Fractures may be seen in the collection involving the head or neck of the rib, or any point from these to the anterior extremity. Do fractures of the head or neck of the rib occur from direct or indirect injury? Certainly from indirect. But to meet the theoretical views, indirect fractures must take place at the angle or centre of the rib.

Malgaigne* makes no concealment of his opinion of Petit's theory of displacement. He says:—"Tout cela est de pure théorie, et ne saurait tenir devant l'examen des faits." Of the theory that fractures from indirect force must be seated near the centre or angle of the rib, he disposes by the observation that when the force is applied on the sternum in experiment on the dead body, the fractures take place always in front, closer to the sternum than to the centre of the rib; again, that in many such cases, notably in seven, observed in 1837, where the injuries were fatal, the seat of fracture was in front, from two to seven millimetres outside the cartilages; and again, he notices a recorded case in which the mode of application of the force was reversed, the accident happening by a horse and cart passing over the back of a man lying flat on his

* *Traité des Fractures*. T. I., p. 432.

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NAT. SIZE.

N. H. ARTHUR. PHOTO LITH.

face. Here the lower ribs broke close to, or at, the cartilages, the upper near the spine. I have already noticed that our collection contains illustrations of fracture, the result of indirect cause, of the various parts of the rib posterior to the angle, even back to the head itself. We have verification of the truth of the observation of Malgaigne in several recent fractures close to the cartilages, in injuries which have killed by pressure applied directly on the sternum. It now remains for me to notice a form of injury of which our collection contains sufficient examples, some of which I submit.

I direct attention to these specimens, as their characters, I think, afford unmistakable evidence of their being instances of fracture from indirect force—while, if this be admitted, they prove, contrary to the opinion of Petit, that displacement inwards may, and does, occur as the result of this mode of fracture. The two first specimens themselves, perhaps rare and special, enable us, I think, to interpret rightly a large group akin to them, being, like them, fractures from indirect injury, yet tending in displacement inwards. I have already stated that our collection does not contain a single specimen which agrees with the theory of Petit. In the first of these specimens (Figs. 1, 2) a fracture has occurred at a very common, perhaps the commonest, seat, just in front of the angle of the rib, and has been but recently and incompletely united; so recent and incomplete is the union that neither the callus nor the effects of absorption have masked the details of the recent injury, while it is by the very callus sealed, as it were, by nature as a *bonâ fide* specimen. The second (Fig. 3) is like it, but differs from it in being older, less easily interpreted, and in the fact that the splinter of bone which in No. 1, by its resistance, gave the fracture the features of an impacted fracture, in this has sprung from the inner surface of the rib, and projects inwards, with lines limiting its extent which are rudely parallel to those which define the end of the sternal fragment. In these two specimens we see a splinter of very definite form detached from the pleural face of the rib, limited by V-shaped margins, and beyond any doubt part of, and the direct result of, a fracture caused by a thrust in the axis of the anterior segment of the rib, suddenly interrupted by its curve at the angle—such a force as acted from before, backwards, and along the rib.

These bones are broken but once on the external table, and the splinters of the inner table could have resulted from no other accident but that which broke the outer. The exceptional character

of these specimens is attested by the following passage which I may quote from Malgaigne:—"Je ne parle pas des fractures comminutives ou compliquées d'esquilles; il s'en rencontre fréquemment quand la côte est fracturée par un coup de feu, mais, à mon grand étonnement, je n'en ai pas trouvé un seul exemple dans les fractures produites par les causes ordinaires; et sur le cadavre je n'ai pas pu en produire."

In the specimens I submit the occurrence of splintering of the bone, and the cause of the splintering—a force acting after the occurrence of the first fracture and in the same direction as it—are incontestable. Anyone familiar with the comminuted and impacted fractures of the long bones will see in these comparatively trivial instances a repetition—rare perhaps, but not the least distinct—of the familiar phenomena—forms of fracture which such an inquirer would *à priori* expect to find. Can we, then, be surprised at the words of Malgaigne, "à mon grand étonnement," when he failed to find them?

I have stated above that our collection contains a group of specimens akin to those of which I have given the leading characters, but varying from them in being double or treble fractures of the body of the rib, and in the wide distances of the fractures, which involve great portions of the body in some instances; still a family likeness connects the series which justifies my placing them together as injuries resulting from the same cause. These specimens number five; adding the preceding two we get the proportion of injuries from indirect force acting in this particular mode, one in ten of the entire collection.

In each of these five specimens the fractures occur in front of the angle. Traces of impaction at one fracture at least can be seen in each. In 19, three complete fractures, each defined by V-shaped extremities projecting towards the pleural side of the bone, have occurred; two, an inch asunder, just in front of the angle; the third three inches nearer the sternum; the hindermost of these injuries shows marked traces of impaction of the vertebral into the sternal fragment. No. 32a has two fractures terminated by less regular lines, V-shaped, pointed to the spine and placed close to each other near the centre of the body of the rib. Here, again, in both fractures can be seen traces of impaction of the vertebral fragments. No. 32b presents three fractures near the sternal end of the bone, the shape of the posterior alone well defined, V-shaped,

* Loc. cit.

projecting on the pleural surface, with a marked impaction similar to the preceding at the posterior fracture. 32b and 29 are double fractures; in each the injuries are close together within three inches of the sternal end; in these the signs of impaction are trivial, and the vertebral fragments are marked off more clearly than the sternal, but the general features are like the three preceding, clearly the result of pressure in the axis of the rib. I might perhaps add to this list from the series, but I take only such examples as leave no doubt on my own mind as having been clearly fractures from indirect injury attended with penetration of one or other fragment into the opposing one. I have casually referred to fractures of the neck and head of a rib of which we cannot doubt that the cause was indirect force, of which we possess several specimens, but I purposely avoid their details at present, as they do not in themselves afford evidence such as appears in the sections of the specimens of fracture in front of the angle I have examined. I may merely state that in every one of these specimens where any displacement occurs it encroaches on the chest cavity.

I believe, then, that I may indorse the statement of Malgaigne that Petit's theory will not stand when brought face to face with facts. I am fortunate in being able to supply the material for filling the gap in the range of ordinary fracture phenomena which Malgaigne has picked, by showing that impaction, with splintering as its result, may occur here as in fractures of other long bones.

ART. XII.—*Notes on Molluscum Sebaceum.* By WALTER G. SMITH, M.D., F.K.Q.C.P.I.; Assistant-Physician to the Adelaide Hospital.

IN the instructive *Lectures on Clinical Surgery*, Vol. I., Part I., recently published by Mr. Jonathan Hutchinson, the first lecture is devoted to the subject of *Molluscum Contagiosum (seu Sebaceum)*. After noticing the curious fact that although the disease has been long and well known in England, yet it is only within the last few years that cases have been described either in France or Germany, where indeed they have been spoken of as interesting rarities, he remarks:—"It would not be without interest to collect further data as to the geographical distribution of contagious molluscum. It seems to be common in Scotland, if we may judge by the

numerous observations published on the subject by Scotch surgeons. About Ireland I do not know" (p. 2, footnote).

In these notes I propose to supply this deficiency, in part at least. My data are derived from the Adelaide Hospital, and chiefly from the special Dispensary for Diseases of the Skin, which is held once a week. Every cutaneous case that presents itself is entered in a register, and as molluscum is an affection usually recognised with such ease, it is not likely that any case escaped observation, except possibly a few examples of isolated tumours too small to attract the attention of either patient or doctor. The dispensary is largely attended, and, from its central position, its records may be considered to fairly represent the relative frequency of cutaneous affections in Dublin.

The disease is very much more common among the lower orders, and is rarely seen in the upper classes, especially when we allow for those patients affected with molluscum in the vicinity of the eyes, and who resort to oculists for treatment. Neither Dr. M'Call Anderson nor Dr. Begbie ever saw it in the higher ranks of society, and Mr. Startin considered that the disease was certainly ten times more common amongst the lower than the upper classes (Dr. Dyce Duckworth, *St. Barthol. Hosp. Rep.*, Vol. VIII.).

Out of a total of over 5,300 cases observed and registered within the past nine years at the Adelaide Hospital, I find 25 cases of molluscum sebaceum noted, or 1 in 200 nearly. I subjoin an abstract of the particulars of these cases in the order in which they came under notice. This proportion represents a frequency eight times greater than in Glasgow, for Dr. M'Call Anderson met with only six examples of this affection in an analysis of 10,000 dispensary cases, or 1 in 1,700 nearly. In the north of Ireland, Dr. H. S. Purdon's statistics, based upon an analysis of 5,700 hospital cases of cutaneous diseases, give the relative frequency of molluscum sebaceum as 1 in 638 (*Dubl. Journ. Med. Sci.*, Oct., 1872).

Dr. Macnaughton Jones, of Cork, in a private letter informs me that "there can be no question of the rarity of the disease in the south of Ireland." From his own experience of hospital and dispensary practice for the past fourteen years, he can recall only one case of true molluscum.

Cases of Molluscum Sebaceum.

No.	Age and Date	Sex	Position, &c.	Evidence of Contagion
1	26 Sept., 1869	M.	Details not noted.	—
2	8 May, 1870	M.	Chest, neck, face; not on genitals. Two months.	—
3	69 May, 1871	M.	Neck, chest, abdomen, arms, legs; none on face or genitals. (See below.)	—
4	19 Sept., 1871	F.	Neck; one on chest.	—
5	6 Nov., 1873	F.	18-20 tumours on chest. Seven months.	Mother stated that when the child squeezed out any of the tumours, wherever the contents adhered to the skin, there a new tumour appeared.
6	18 Feb., 1874	M.	Two small tumours on dorsum of penis for years; one double, with two depressions; nowhere else.	—
7	2 April, 1875	M.	About a dozen tumours on the neck. Two months.	No one else in the house affected at the time. Nine months later his younger sister presented herself with a similar eruption. (Cf. No. 9.)
8	32 June, 1875	M.	A number of small tumours on penis only.	—
9	1 yr. 8 mo. Dec., 1875	F.	Face and neck. Three weeks.	Sister of No. 7.
10	7 Jan., 1876	F.	About six on face, neck, and back of shoulder; one on face sup- purating; none on genitals.	—
11	4 Jan., 1876	F.	Five on face, eyelids, mouth, temples; one on right upper eyelid suppurating and resem- bling a boil or abscess; two on fingers.	Said to have taken it from another girl in the same house, who was similarly affected.
12	11 May, 1876	F.	Face, eyelids, and front of ear; one near ear inflamed; none on genitals.	—
13	29 June, 1876	M.	On penis only. One year and a half.	—
14	1 yr. 4 mo. July, 1876	F.	Face, first on chin, then about angles of mouth and on neck.	See below.
15	9 July, 1876	F.	Eyelids, nose, upper and lower lips, third rib, first and third fingers; none on genitals.	Lived in same house as No. 14.
16	5 July, 1876	F.	Five about the right shoulder; none on face or genitals.	Other children in the house, but no history of their being affected.
17	22 May, 1877	F.	Face and neck; one tumour large and inflamed.	—
18	11 Nov., 1877	F.	About six on neck only. Five months.	—
19	36 Nov., 1877	M.	About a dozen on forehead only.	—

Cases of Molluscum Sebaceum—continued.

No.	Age and Date	Sex	Position, &c.	Evidence of Contagion
20	10 months Dec., 1877	F.	About twenty on face and neck only; one or two acutely inflamed; none on genitala.	—
21	14 April, 1878	F.	Vulva and inside of thighs; one acutely inflamed. One year.	—
22	7 May, 1878	F.	One below right eye.	—
23	10 months July, 1878	M.	Seven or eight on face, and three or four on scalp; none elsewhere.	Mother is nursing the child, but presents no trace of the eruption. Another child in the house said to have been similarly affected.
24	4 Sept., 1878	M.	Face only; two beside the nose, acutely inflamed, resembling boils.	—
25	3 Sept., 1878	M.	Face only; one on right outer canthus, inflamed and wart-like; two on left lower lip; one or two specks on right cheek.	No tumours to be found on mother, or on baby (six months), and sister (eleven years) said to be free from it.

These returns, I need scarcely say, strictly refer to molluscum sebaceum only, and I have not as yet chanced to meet with a solitary case of molluscum fibrosum. Some of the notes are imperfect, and I regret that due attention was not paid in every case to the curious question of contagion, but Cases 14 and 15 belong to a series which furnish some evidence upon this point.

Case 14.—Maggie O'N., aged sixteen months. Two small tumours appeared three months previously; one was situated exactly in the middle line of the chin, and the other a little to its right. Some months later she was again brought to the dispensary with a number of new mollusca, several minute tumours about the angles of the mouth, and two larger ones on the side of the neck. Inquiry elicited that the child's sister, aged two years nine months, was the first to be affected with similar tumours—one near the right eye and another on the right side of the chin. These "festered," and disappeared spontaneously in about two months. The father also contracted several of these tumours about six months ago, and now (July, 1876) has five or six on the forehead and about the left eyebrow. The mother never exhibited any herself, but believes that her children caught them from a boy (Joseph D.), aged seventeen, who was living in the house with them. The boy is unable to account for the tumours appearing on his face. A

little girl (Catherine O'B.) who, at that time, was living in the same house with these children also had a number of similar tumours (Case 15). Her mother did not contract them.

In addition to the abundant credentials adduced by Dr. Duckworth (*St. Bartholomew's Hosp. Rep.*, Vols. IV. and VIII.), Mr. Hutchinson, and others in support of the doctrine of contagion, I may refer to the cases recorded by the late Dr. H. Eames in 1872. In one family he observed the disease to occur in the following order of succession:—(a) A boy, aged two years and nine months; (b) a girl, aged fourteen years; (c) the mother; (d) a girl, aged eight years. The eldest boy remained unaffected; all the children slept in the same room (*Brit. Med. Journ.*, Dec. 21, 1872); and, in the same Journal, Dr. Ferrier relates another corroborative case.

Those who, with Hebra and Wilson, refuse to admit the contagious character of this disease, do not offer any sufficient explanation of the numerous cases now on record of the successive development of the disease in several members of the same family, or in other individuals whom circumstances bring into close and frequent contact.

In regard to position it will be seen that in 17 out of 24 cases the eruption occurred on the face or neck, and in one instance only on the scalp, in which situation it is extremely rare. The great majority of the cases were incidental to childhood or youth, but the affection may be met at any period from early infancy (Cases 20, 23) to old age. As to sex, 11 cases were contributed by males and 14 by females—a proportion differing from that stated by Piffard (*Diseases of the Skin*, p. 343).

The importance of a correct diagnosis is illustrated by Cases 6, 8, and 13, where the tumours were restricted to the penis only, and by Case 21, where the vulva of a young girl was involved, and a serious mistake might possibly have been committed. Mr. Hutchinson mentions that it has happened to him four times to see a molluscous tumour mistaken for an indurated chancre, and in one of them the patient had been put under the full influence of mercury by the surgeon. In another case of diffused molluscum a syphilitic diagnosis was also made.

Again, in such a group of cases as 10, 11, and 12, and notably in Case 11, the resemblance to a boil was so close, and the peculiar characters of the molluscous gland so obscured by inflammatory changes, that an error of diagnosis would be far from unlikely;

but it is scarcely necessary to observe that the two affections require different management. Cases 3, 13, and 21 show that the duration of the disease is not unfrequently protracted, although it cannot be denied that the majority of the tubercles is self-limited in time; and, as we can trace upon the face, for example, they either vanish gradually, or become pedunculated by extrusion and then drop off, or are separated by inflammatory action.

There is a general agreement as to the treatment proper for these singular little tumours—viz., that it is essential to remove the hypertrophied gland, and to prevent the re-development of its secretion. With the larger tumours I am in the habit of squeezing out the sharply lobulated contents of the distended follicle with the finger nails, or preferably, with a dressing forceps, and then cauterising the interior of the cavity. A single turn of a pointed stick of nitrate of silver answers very well, and immediately checks any slight hæmorrhage that may occur. The minute lichenoid molluscous specks often noticeable on the face are conveniently destroyed by pressing a tiny drop of acid nitrate of mercury firmly into the central depression. If there be any tendency to pedunculation the tumours are best snipped off, and the base cauterised.

The extruded contents of the larger follicles often exhibit a striking resemblance to a miniature brain, with its diminutive convolutions.

How any one who has examined a sufficient number of these lobulated tumours, and watched their evolution, can doubt the sebaceous origin of molluscum is a puzzle; and when we read of pathologists describing this disease as a "hyperplastic epithelioma," it is difficult to believe that they can mean the same affection as that under consideration.

Lastly, I would call attention to Case 3, as a remarkable and rare example of abundant and exaggerated development of molluscous eruption. Previously to 1871, Mr. Hutchinson, in all his large and varied experience, had not seen a case of the kind, and is not aware that any author has described similar cases, but within the next four years, he was enabled to observe 3 additional cases of generalised molluscum sebaceum.

I have in my possession a drawing which excellently reproduces the peculiar features of the eruption in my case, and which I exhibited to the Pathological Society in 1871. The following are the details:—

A man, aged sixty-nine, was admitted into the Adelaide Hospital,

May 27th, 1871, suffering from bronchitis. Upon stripping him a large number of tumours were seen scattered over the surface of the body. They occurred on the lower part of the neck, on the chest, abdomen, arms, and one or two on the legs. Their number amounted to many scores, and they were of various sizes, the smallest being about equal to a small pin's head. The largest tumour was situated over the upper part of the left rectus abdominis muscle, and measured $3\frac{1}{4}$ inches by 3 inches.* It was soft, pendulous, and studded over with numerous pin-hole depressions. Many of the other tumours were likewise marked by a central dark speck, from which a cylinder of sebaceous matter exuded on pressure. The second largest tumour occupied the left groin, and measured $2\frac{1}{4}$ inches by $1\frac{1}{2}$ inches. In colour they did not differ from the adjoining skin, or were slightly pink; they were sessile, generally fixed by a broad base, and they were absent from the face and genitals. Of their sebaceous character there could be no doubt, and not a few of them had become cystic from absorption of their contents. These tumours had existed for at least 30 years, and had never caused any inconvenience. None of them underwent inflammatory changes. For some years new tumours developed, themselves, but the patient asserted that no fresh ones had appeared for the last 15 or 20 years. Interspersed between the tumours were many small purplish stains, probably marking the position of old tumours which had disappeared.

ART. XIII.—*Remarks on some New Forms of Surgical Dressings and Applications.*^b By SURGEON-MAJOR J. H. PORTER, Assistant Professor of Military Surgery, Army Medical School, Netley.

THE late Dr. Parkes, as President of the Southampton Medical Society, at one of the annual meetings impressed upon us the importance of selecting for our discussions subjects bearing on therapeutics, and as his advice has frequently presented itself to me when considering what subject I should bring before you in fulfilling my promise to read a paper some time during the year, I considered I would be following his excellent counsel were I to endeavour to interest you by making a few remarks based on my

* One of the largest tumours on record is that mentioned by Mr. Erasmus Wilson, and it was only $3\frac{1}{4}$ inches in diameter.

^b Read before the Southampton Medical Society, October, 1878.

practical acquaintance (though limited) in the use of salicylic acid, iodoform, thymol, cotton wools, and chrysophanic acid, which have lately been mentioned and their merits debated in various medical journals as surgical dressings or applications. In doing so I purpose simply to give my experience without any theory, and uninfluenced by the opinions of the authorities who have suggested these remedies; and in stating my views I hope it may be the means of deriving from you the benefit of your experience in more extended practice, and thereby enable us to form some opinion as to their general utility.

Salicylic acid I shall first notice, which preparation was prominently brought forward early in 1875 as the new disinfectant, and has since been extensively used in Germany, especially by the distinguished military surgeon, Esmarch, who has introduced it as a component part of the "first dressing" for wounded. For the last three years I have been using it in several forms, but principally as a lotion in combination with borax for the treatment of primary syphilis, indolent scrofulous ulcers, varicose ulcers, lupoid and rodent ulcers, and ulcers the result of some specific poison or parasite, such as rupial, the Delhi and Mooltan ulcers; also in indolent granulating surfaces, the result of wounds or injuries.

In primary syphilis I found it less effective than our popular remedy, "*black wash*." In the lupoid, rodent, Delhi, Mooltan, and other specific sores, I found it of no value whatever as a means of healing; but in indolent scrofulous ulcers, varicose ulcers, and ulcers resulting from wounds, such as that remaining after a slough from a gunshot wound, I cannot speak too highly in its praise, being clean, without the least smell, as a rule non-irritating, and quickly rendering the surface of such ulcers clean and healthy, in many instances effecting remarkably rapid cures in cases in which various methods had already been adopted without success.

As compared with carbolic acid, I consider it far preferable as a surgical application, the latter to some having a disagreeable smell, and in even minute proportions causing considerable irritation, even retarding the healing process of nature. It has been proposed to use salicylic acid, either dry, in solution, or in an ointment; when in the former condition to be sprinkled on the wounds, ulcers, or dressings in the form of a very fine powder in small quantities, either simply powdered or mixed with some diluent, such as starch. When used in solution for spraying surfaces or for lotions, it is

necessary to add some means of dissolving it, such as phosphate of sodium or borax, which latter, being so very harmless, and a good application in itself, I have invariably used in the following proportions:—3 parts of salicylic acid, 2 parts of borax, mixed with 100 parts of hot water—*i.e.*, for an 8-ounce lotion, salicylic acid 115 grains, borax 77 grains. These form a clear pinkish fluid which will be found efficacious in the different classes of ulcers already mentioned.

In using this lotion for an ulcer with a disposition to slough, I first destroy its surface with strong sulphuric acid. If that is not necessary, cleanse its surface with warm water, or if it be encrusted remove the crusts by means of a poultice. The lotion may then be applied on lint in the usual manner, covered with oiled silk or gutta-percha tissue; but I need scarcely point out that, as in all matters connected with surgical patients, cleanliness is essential, as well as rest, regulation of diet, and habits.

In a dry condition I cannot recommend it, as it tends to form a crust on the wound with collections of pus underneath, and as an ointment it becomes rancid with a sour smell after twenty-four hours' application. I have stated that, as a rule, salicylic acid as a dressing is not irritating, and had I been asked my opinion on it two months ago I should have said it was not in the least so, but recently three cases came under my notice in which its application, both as a lotion and in a dry state with starch, caused pain and irritation. One was that of a nervous lady suffering from varicose ulcers of the leg, for whom I recommended the lotion. Shortly after it had been applied the superficial veins of the leg and abdomen became greatly inflamed, accompanied by constitutional disturbance. This I at first considered accidental, but on inquiry was informed that on a former occasion the same symptoms followed the application of a salicylic acid lotion to an ulcer on this lady. Another example was in that of a soldier with an extensive ulcer on the arm, in whom the application of the lotion was followed by acute pain; and the third was that of a case of lupoid ulceration on the buttocks, in whom the acid in powder mixed with starch was used, and caused severe lancinating pain. These are the only examples I can bring forward after using it in scores of cases.

Iodoform.—Mr. Berkley Hill, in the *British Medical Journal* of the 26th of last January, has brought to the notice of the medical profession the therapeutic use of iodoform in chronic venereal sores,

in indolent non-specific ulcers, in cases of obstinate syphilitic ulceration of the tongue, where the dorsum is covered with rugged thickened epithelium, which is constantly splitting into deep fissures, in ulcerated and protruding gumma of the testes, and ulcerating gummata of the skin over bone. Locally he recommends its being applied as a dry powder brushed lightly over the surface with a moistened camel's-hair pencil, or applied as an ethereal solution in the proportion of 1 part of iodoform in 6 or 8 of ether. Internally he has given it as a pill in half-grain doses made up with the extract of gentian.

Dr. Prosser James supports Mr. Berkley Hill's views, and recommends its application in specific ulceration of the soft palate, pharynx, tonsils or nasal passages; and in those indolent cases, he remarks, which have been believed by able observers to be scrofulous ulceration, but which some of their critics still think due to syphilis, iodoform will sometimes bring about a favourable change, when the failure of other means has been most discouraging. He also recommends it in obstinate cases of ozæna, and gives it in one-grain doses made up with the extract of taraxacum or sarsaparilla.

Mr. Woakes, Surgeon to the Hospital for Diseases of the Throat, recommends its use in cases of rhinitis, ozæna, post-nasal catarrh, and hyperplastic deposits. Whether simple or syphilitic, he says that in these cases iodoform exercises quite a specific influence.

Mr. Bernard, of the Liverpool Seaman's Dispensary, speaks of its efficacious effects in chronic venereal sores and in open buboes where sinuses have formed.

With recommendations coming from such authorities, and having numerous opportunities at Netley for trying remedies with some of the morbid conditions described which had baffled all endeavours to heal by most earnest and experienced surgeons, I felt in reading the different opinions a remedy had been introduced which would materially aid us in relieving suffering.

At the time iodoform was under discussion in the medical journals I had under my care several venereal sores of most indolent and obstinate character, and which numerous remedies had failed to heal. With these the drug acted in a remarkably speedy manner, as may be seen by the following examples taken from notes recorded by my friends, Surgeons A. Stokes and R. Exham, of the Army Medical Department:—

CASE NO. I.—A hard indolent chancre of long standing; glands enlarged in both groins. Iodoform applied 7th February, 1878, as a dry

powder with a little cotton wool; no constitutional treatment. On the 9th healthy granulations had appeared. On the 12th, the powder being daily applied, the sore was cicatrising rapidly, no discharge, surface dry, and on the 13th it was healed.

CASE No. II.—A soft chancre very indolent; inguinal glands not affected; no constitutional treatment. Iodoform applied as a dry powder on the 7th of February. On the 9th surface of sore was looking healthy and granulating, and on the 12th it had completely cicatrised.

CASE No. III.—Soft indolent chancre; inguinal glands unaffected. Iodoform applied on the 7th of February. On the following day the appearance of the ulcer was greatly improved, when it was again applied. On the 12th the report mentions that the sore is healthy and cicatrising rapidly; by the 15th it was a quarter of its original size, and by the 21st completely cicatrised.

Numerous other cases of a similar character might be quoted, but the above examples will, I think, be sufficient to show the efficacy of the application in indolent and obstinate syphilitic ulcers.

In several cases of indolent sinuses, the result of open buboes, iodoform in powder caused considerable irritation, with apparent tendency to the formation of abscesses in the adjoining tissues, and had to be discontinued; but in others, where the ethereal solution had been applied, so as to enable it to reach the bottom of the sinus, its effects were most satisfactory.

In some cases of syphilitic ulcers and fissures of the tongue, the powder effected a speedy cure; but in some extensive syphilitic ulcers of the soft palate, tonsils, and pharynx, accompanied by ozæna, in which the powder and ethereal solution were applied, as well as half-grain doses given internally, it had to be omitted after a week's trial, as the ulceration had extended, and the parts had become so dry and painful that the patients could scarcely swallow, or obtain any rest. They were, however, still given the iodoform internally, and nitrate of silver applied to the sores. Under this treatment they immediately improved, probably due to the nitrate of silver, which had improved the conditions of the ulcers on a former occasion.

I have used it in a powder for malignant ulcer of the breast, lupoid and rodent ulcers, but without any benefit; in these diseases it was given internally as well.

In the case of malignant ulcer of the breast, and lupoid ulcers, it was discontinued after several days' trial, as it was doing no

good, and the patients complained of the smell being so offensive both to themselves and the men in the ward with them.

In a case of rodent ulcer of the face its application was discontinued on the third day, in consequence of its drying properties and the great irritation it gave rise to.

To summarise my experience in this drug, I may say that it was most beneficial in indolent syphilitic and non-syphilitic ulcers on the penis, and in indolent open buboes with deep sinuses. In some ulcers and fissures of the tongue it was also found useful, but in ulcers of the soft palate, tonsils, and pharynx, with ozæna, it certainly did not impress me with being a remedy which might supersede nitrate of silver, chloride of sodium, creasote, or chloride of zinc for such cases. Its smell is so persistent and offensive, or rather peculiar to some individuals, especially when mixed with foetid pus, that I doubt if many persons, particularly among the higher classes, would tolerate it for any length of time. This experience is opposed to that of Dr. Segmud, of Vienna, who remarks that the offensive smell of diphtheritic and cancerous ulcerations was entirely removed by the remedy.

Thymol, the essential ingredient of oil of thyme, has been introduced by Professor Volkman, of Halle, as an external antiseptic; it has been recommended as being bland, without any innocuous effects on the system at large, and not irritating to the parts to which it is applied. Mr. Wiltshire, in the *British Medical Journal* of March 30th, 1878, remarks that it makes a good ointment mixed with vaseline, but the quantity must be small, otherwise it is irritating; that it is a more powerful germicide than carbolic acid; and that it is a deodorant and disinfectant. In the wards of Netley I have used it in solution, and on gauze, as a dressing in recent amputations. I can fully bear out the opinion that it is bland and non-irritating in the proportion recommended—i.e., 1 part in 1,000 of water, but I do not consider it a deodorant, as mixed with purulent discharge the odour is most objectionable, or, as Mr. Stokes, of Dublin, remarked to me in a communication I had from him lately on the subject, is intensified. He says:—"In a case of my colleague, Dr. Thomson, now in hospital, and lately the subject of thigh amputation, in which thymol has been extensively used both during the operation and subsequently in dressings, I thought that it certainly had the effect above alluded to."

Cotton wool has, of late years, found favour among some surgeons

as a surgical dressing—M. Guerin, of the Hotel Dieu, especially recommending it. His plan consists in surrounding the wounded part by very large quantities of cotton wool, as much as 4 lbs. being sometimes used, and rendering the whole dressing firm and compact by tightly applied bandages, which are left undisturbed for several weeks. The result of this method, as some may have observed by the report of an eye-witness, published in the *British Medical Journal* of the 24th of last August, was anything but favourable, the stench in some cases being disgusting.

The result of my own experience of ordinary cotton wool as a dressing has not been at all satisfactory, as I found it only formed collections of offensive pus, with but little power of absorption, and no deodorising or antiseptic properties. It appears, however, as remarked by Dr. W. Reid, R.N., destined to render good service in the practice of surgery, particularly in that of the navy and army, in the treatment, for example, of severe wounds or accidents on board men-of-war, when, owing to the motion of the ship, it is almost impossible to protect traumatic surfaces, or to obtain immobility of the parts. Again, on the field of battle there is no method likely to offer greater advantages in the transport of wounded. A stump or shattered limb well protected with cotton wool might be conveyed a long distance without any additional injury to the sufferer.

As dressings for ulcers, I have had better results from salicylic and chloralum wools, the former containing 25 per cent. of the acid in each 1 lb., and the latter a mixture of one part of perchloride of iron to three parts of chloride of aluminum. This latter preparation was much used by the surgeons of our Red Cross Societies during the Franco-German and Russo-Turkish wars, for the dressing of recent wounds, being considered a good styptic. Both wools, I presume, have antiseptic properties, but are not good deodorants or absorbents.

There is another wool which has recently attracted my attention, and which I consider one of the most useful applications we have in modern days added to our already extensive list of surgical dressings. I refer to the *absorbent cotton wool*, prepared by Henry and Co., of Cow Cross-street, London. It is particularly soft, absorbs all moisture from ulcers or wounds, so that after its application no discharge remains. It is more absorbent and lighter than lint, holding a larger quantity of water, which it instantly absorbs in a much smaller amount of material. It is more readily adapted

to the size of a wound or ulcer than lint, and, I am informed, is an antiseptic. To some extent it is a deodorant. In the treatment of some indolent ulcers in which other applications failed, I found it most beneficial, and would strongly recommend it to your consideration as worthy of trial.

Chrysophanic acid has recently been brought to the notice of the medical profession by Sir Joseph Fayrer, Dr. Balmano Squire, Dr. A. Janisch (von Hebra's clinical assistant), and other medical gentlemen, for the treatment of some forms of skin disease, especially prevalent in India, and which frequently come under our observation in military practice. The popular name by which this drug is known in India is the "goa powder," the chief constituent of which is chrysophanic acid, so called from its brilliant yellow or gold shining colour. It appears, however, that Dr. Janisch considers that its proper scientific name is bioxymethylantrachinon, the acid being a derivative of a hydrocarbon, the name of which is methylantracen. In India it has for a long time been in use as a secret remedy for the cure of ringworm exclusively; and, along with other trees of the same order, it has been used for furnishing dyes, and, as a dye, it is certainly a most indelible one, which is clearly seen by the stains it produces on articles of clothing which may be brought in contact with it during its application for skin diseases. The skin affections for which it has been recommended are what are known as contagious ringworm, Dhobi's (washerman's) ringworm, tinea circinata, tinea tonsurans, Burmese ringworm, pityriasis versicolor, eczema, acne rosacea, and psoriasis.

In my own practice I have only had an opportunity of using it in psoriasis, tinea circinata, or Dhobi's itch, eczema, and ringworm of the scalp. The first cases I tried it in were two of psoriasis, one of which was in an officer home from Lucknow, the other a soldier invalided from Singapore. The trunk and arms of the former were covered with it, causing him great uneasiness and mental anxiety. On the 3rd of last February he applied the chrysophanic acid ointment morning and evening, and continued it daily till the 8th, when the irritation became so intense, and the glands in the axilla enlarged, that it was necessary to discontinue it. It was, however, repeated on the 11th, when the skin had commenced to peel off, not only from the diseased but from the sound parts. Almost the first application (remarks the patient) caused the body to turn red, gradually deepening to a copper-colour, the rings of the eruption being rather darker, and gradually whitening.

Irritation commenced after the second day, and rapidly increased, but subsided when the ointment was discontinued. The patient was perfectly free from a trace of the disease in about three weeks. Being his first experience with the acid, and not being aware of its staining properties, he was not a little surprised when he was shown a white cotton jersey and flannel belt dyed of a deep purple colour, which condition the laundress stated she was quite unable to remove. In the case of the soldier the disease was of long standing, and his trunk and arms were thickly covered with the eruption. Chrysophanic acid ointment was rubbed in once a day by an attendant, the usual symptoms followed, and, after a period which was considerably longer than in that of the officer, the disease completely disappeared. In all other cases of psoriasis in which I used the acid—and some were of an aggravated and chronic form—the result was most satisfactory.

In cases of *tinea circinata*, which chiefly engaged the inside of the thighs, two applications of Squire's ointment completely removed the disease, but it produced great irritation and œdema of the prepuce and scrotum. In cases of ringworm of the scalp, in which I prescribed the ointment, there was no benefit whatever, and the little patients (for they were children) suffered conjunctival irritation from, no doubt, some of the drug getting into their eyes. In cases of eczema of the scalp it was positively injurious, causing great irritation, rendering the parts inflamed, and producing constitutional disturbance.

Such is the result of my limited experience, which, so far as psoriasis and *tinea circinata* are concerned, could not have been more satisfactory.

Its great irritating and dyeing properties are decided disadvantages, and until some means have been discovered whereby these complications may be modified, chrysophanic acid will certainly be an unpopular remedy. In my first cases I used an ointment composed of one drachm of the acid to one ounce of lard, but subsequently I used an ointment kindly sent me by Mr. Balmanno Squire, which contained no grit, from, I am informed, the acid crystals having been dissolved with benzol. This solvent has the reputation of being able to remove the stains of the acid from the skin, but in my experience had no effect whatever.

Before concluding this paper I will ask your permission to make a few remarks on a surgical dressing I have myself introduced. I allude to sawdust derived from one of the pine species. It has now

been in use for some time, and I believe, when applied as suggested, has been found a good absorbent and deodoriser, as well as suitable material for making extemporised pads for fractures.

My chief object in referring to it at present is that some of my medical friends, merely hearing of it as a dressing, do not quite understand how to apply it. The process is simple. Obtain a fresh supply of the dust, of a fine description, enclose it in gauze or muslin bags a little larger in superficial area than the part to which it is to be applied, see that any splinters of wood or impurities have been removed from the dust, and that the stiffening has been washed out of the muslin or gauze. Do not fill the bags too full, or they become hard; and, if it is desired, place a piece of oiled lint, with several holes cut in it, between the wound and the pads. If the pads are very large, put two or three stitches in them, so as to keep the sawdust evenly distributed.

Since these pads have been introduced it has been suggested to use the sawdust taken from the wood of the eucalyptus, it having in itself powerful remedial properties, or to steep the ordinary pads in a solution of the eucalyptus or terebene, and then dry them, which would increase their antiseptic and deodorising properties. The addition of both these powerful antiseptics and deodorants is, no doubt, excellent, but the modification quite does away with my prime object—simplicity.

Had I time, I should like to have referred to eucalyptus and terebene as surgical dressings, but I fear I have already trespassed on your patience. I may, however, mention that the great difficulty in using them as lotions is to diffuse them, as, from their oleaginous and resinous properties, they are disposed to float, or adhere to the side of vessels.

INTELLECTUAL DISORDERS IMPUTABLE TO HUNGER.

A PROLONGED fast may give rise to nervous disorders resembling hallucinations, which diminish if they do not abolish the exact consciousness of surrounding circumstances, and lessen or even cause to disappear the responsibility of certain actions. Thus, a youth fifteen years of age, of pleasing character and quick intelligence, without personal or hereditary epileptic antecedents, was convicted of an attempt to murder a girl eight years of age. He had been wandering forty-eight hours in the country without food, when he attacked his victim with a violence for which no motive could be discovered. To all questioning he replied—"I was hungry; I had lost my head."—*Lond. Med. Record*, Aug. 15, 1878.

PART II.
REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT WORKS ON CHOLERA.

1. *Cholera in Relation to Certain Physical Phenomena: a Contribution towards the Special Inquiry sanctioned by the Right Hon. the Secretaries of State for War and for India.* By T. R. LEWIS, M.B., Surgeon, British Medical Service; and D. D. CUNNINGHAM, M.D., Surgeon, Indian Medical Service; Special Assistants to the Sanitary Commissioner with the Government of India. Calcutta: Office of the Superintendent of Government Printing. 1878. Quarto. Pp. 135.
2. *Observations on the Efficacy of Burning Sulphur Fires in Epidemics of Cholera.* By SURGEON-MAJOR J. E. TUSON, M.D., F.R.C.S., 16th Bengal Cavalry. Third Edition. London: H. K. Lewis. 1878. Pp. 15.
3. *The Cholera Epidemic of 1873 in the United States.* Washington Government Printing Office. 1875. 8vo. Pp. 1,025.
4. *Cholera: the Laws of its Occurrence and Non-occurrence, and its Nature.* By C. SPINZIG, M.D. St. Louis, Mo. 1877. Pp. 52.
5. *Cholera of 1873.* By W. R. SEVIER, M.D., Jonesboro, Tennessee [from the *Lancet and Observer*, December, 1875]. Revised.
6. *The General Subject of Quarantine, with Particular Reference to Cholera and Yellow Fever.* By JOHN M. WOODWORTH, M.D., Surgeon-General, Mercantile Marine Hospital Service, United States of America. International Medical Congress, Philadelphia, 1876. Philadelphia, 1877. Pp. 13.
7. *Das Auftreten der Cholera in Dänemark seit ihrer ersten europäischen Invasion verglichen mit dem Auftreten dieser Krankheit in den angrenzenden Ländern und den benachbarten Hafenstädten.* Eingereicht an die Internationale sanitäre Conferenz in Wien. Von P. A. SCHLEISNER, M.D., &c., &c. 1874.

The Appearance of Cholera in Denmark, from the time of its First Invasion of Europe, compared with the Appearance of this Disease in Adjoining Countries and in Neighbouring Seaports. A Memoir presented to the International Sanitary Congress at Vienna. By P. A. SCHLEISNER, M.D., Medical Officer of Health for Copenhagen.

THE work of Cunningham and Lewis, which heads our list of recent contributions to the literature of cholera, is in continuation of the numerous and valuable series of observations which these well-known investigators have already added to the voluminous literature of cholera. This investigation was entered upon by Drs. Cunningham and Lewis with the principal object of determining the influence of the conditions of soil on the prevalence of cholera, but it was found that these conditions were so intimately associated with meteorological phenomena that it was necessary to consider these latter in connection with the former. Accordingly, we find that the authors have carefully considered the influence of atmospheric pressure, temperature, and humidity; rainfall, level of soil water, soil temperature, and carbonic acid of the soil, and *soil-ventilation*. Elaborate and carefully compiled tables, with corresponding graphic diagrams to illustrate the points under consideration, are included in the work.

The prevalence of cholera in its relation to physical conditions (of soil and atmosphere) is considered under two principal aspects—namely, those which it presents in the area of its endemic and that of its epidemic prevalence. The conditions of its prevalence in Calcutta are considered separately from the rest of the endemic area. Calcutta and Lahore are selected as extreme examples of places where cholera prevails endemically and epidemically respectively. The authors confine their remarks to the information collected in Bengal, but declare their intention at some future period to publish an analysis of the records from Madras and Bombay.

The information derived from the statistics of Macpherson, Payne, and Bryden are relied on as affording sound data by which to estimate the seasonal fluctuations of cholera in Calcutta, the following being the result arrived at:—

“Taking November as most nearly representing the average prevalence of the disease, and therefore as a good starting-point, we find successive diminutions in prevalence during December and January, a rapid rise in February, continuing to the maximum in March and April, a marked

diminution in May, continued through June, to a minimum in July, August, and September, and, finally, a rise in October to reach the average in November" (p. 10).

Comparing the seasonal prevalence with the meteorological and other physical phenomena, the results are, with reference to—

(a) *Atmospheric Pressure*.—The season of minimum prevalence is characterised by low atmospheric pressure, but further than this there is no correspondence.

(b) *Atmospheric Temperature*.—If it exert any influence on the variations in the prevalence of cholera in Calcutta, it does so only in a very subordinate way. Periods of maximum, minimum, and medium prevalence are found occurring with an almost unaltered temperature. Nevertheless, high temperature to some extent seems to favour the prevalence of cholera.

(c) *Atmospheric Humidity*.—There is a certain amount of coincidence between *diminished* humidity and *increased* cholera prevalence. The periods of maximum prevalence and minimum humidity and minimum prevalence and maximum humidity correspond very closely. In a diagram constructed for twelve years, with a view of showing the relations of combined humidity and temperature, the parallelism between the curves is very remarkable, showing that high temperature and low humidity coincide with high cholera-prevalence, and *vice versa*.

(d) *Rainfall*.—The minimum months of prevalence correspond with three of maximum rainfall; the maximum months of prevalence coincide with one of minimum and three of intermediate rainfall; the intermediate months of prevalence with three of minimum, one of intermediate, and one of maximum rainfall.

(e) *Level of Soil-water*.—The period of maximum prevalence coincides with part of the period of maximum depression of the water-level, and one of the months of minimum prevalence with the month of minimum depression. When, however, the data are more minutely examined, the coincidence is found to be a general one only, and numerous divergencies between the courses of the two phenomena present themselves. Whilst the prevalence of cholera in Calcutta is associated with a low level of the soil-water, the data very clearly show that the absolute water-level in itself is of no importance.

(f) *Soil-temperature*.—The data relative to soil-temperature are those derived from observations at a depth of six feet below the surface. The minimum soil-temperature occurs in January; the maximum in June and July. The temperature exceeds that of the atmospheric air in the months of November, December, and January, and falls far short of it during March, April, and May. Thus soil-ventilation is favoured during

the former and obstructed during the latter months, and almost in equilibrium during the remaining months of the year. Comparing the data of soil-temperature and cholera-prevalence, we find that the great maximum of prevalence in April and the minor elevation in November both occur where the soil-temperature is between 78° and 79°. Here, however, the coincidence ceases; for the increase of soil-temperature after April and the decrease after November are both associated with decreased cholera-prevalence. It is worthy of note that such a coincidence should be present in reference to those two months, for in other respects they differ from one another considerably. The only other conditions in which they tend to agree is the atmospheric humidity.

(g) *Carbonic Acid of the Soil-air—Soil-ventilation.*—The observations concerning this point are confessedly very imperfect and of limited duration. The fluctuations in carbonic acid of the soil-air are taken as a measure of the amount of soil-ventilation. In November, December, and January the amount of carbonic acid is high; in February a considerable decrease occurs, and the minimum is reached in March and April. During May a slight increase occurs, continued through June and July, followed by a rapid rise in August to the maximum in September, after which a decrease occurs reducing the average for October to an equality with that for August on the one hand, and for November, December, and January on the other. The increase of carbonic acid is apparently caused by the increased rainfall. The water closes the pores of the finely textured soil of Calcutta, forming an impermeable partition between the air of the atmosphere and that of the soil beneath the moistened layer, thus preventing soil-ventilation. This is not so in Europe, where the rainfall is more evenly distributed throughout the year; there the maximum of soil carbonic acid coincides with the maximum temperature of the upper strata of the soil. The maximum of cholera-prevalence coincides with the maximum of soil-ventilation, and *vice versa*.

Taking the entire series of comparisons it would appear that the conditions most closely connected with the seasonal prevalence of cholera in Calcutta are those of water-level and soil ventilation. Both water-level and soil ventilation appear, however, to be mainly determined there by rainfall, so that the condition of rainfall and prevalence must also be intimately connected. That they actually are so, is indicated by the coincidence of maximal rainfall with minimal cholera.

We have given a somewhat detailed account of the observations relative to cholera-prevalence in Calcutta, with a view of representing in some degree the exact methods followed by the authors.

The next series of observations are directed to "Cholera in the Endemic Area Generally." The endemic cholera area is defined by Dr. Bryden as "the basin having the hill-country east of the Brahmaputra for its eastern margin, and the Rajmahal and Cuttack Hills for its western margin. Its northern limit is the terai of the Himalayas from Lower Assam on the east to the terai of the Purneah district on the west, and its southern limit is the sea border of the Bay of Bengal from Pooree in the west, to beyond the mouth of the Brahmaputra on the east." The authors tell us that the "history of cholera all over India presents one common feature—that is, that it can only be fairly regarded as endemic in such localities as manifest a close resemblance in the more superficial layers of their geological formation," the favourable geological condition being "a mixture of firm sand and clay with decaying animal and vegetable matter—loams very much like the silt that settles from muddy river-water. Below this, at a distance of from six to ten feet, comes a bed of stiff clay, and below this again a layer of peat resting on alternating layers of sand and clay." This is the geological condition existing at Calcutta, and a similar condition exists wherever cholera prevails *endemically*. A soil of this nature is, as already shown, liable to have its ventilation materially affected by rainfall.

The prevalence of cholera and its relation to physical conditions in the non-endemic area of Bengal is dealt with in a similar manner to that which we have detailed with reference to Calcutta. The general conclusions derived from a comparison of the various rates of prevalence of cholera and physical conditions in the endemic and epidemic areas respectively are discussed in Part IV. of the work. Taking Calcutta and Lahore as types of the two areas respectively, "maximum prevalence in Calcutta occurs coincidently with relatively high atmospheric pressure and with low humidity and rainfall: whilst in Lahore it is associated with precisely the opposite conditions."

"The data in the Bengal Presidency afford no ground for supposing that *atmospheric pressure* exerts *per se* any appreciable influence on prevalence; and the contrasts presented by the endemic and non-endemic areas in this respect must be regarded as entirely subordinate to those of relative humidity and rainfall."

With reference to *atmospheric temperature*, there is agreement between its relation to prevalence in the epidemic and non-epidemic area, thus supporting the belief that a high temperature favours the prevalence of cholera.

The observations on soil-ventilation and soil-humidity in the non-endemic area are not sufficient for drawing valuable inferences respecting their relations to the prevalence of cholera.

Drs. Cunningham and Lewis have not only done a great deal to advance the study of the relation of cholera to physical phenomena, but have cleared the way for all other observers by laying down the data required for forming accurate conclusions. The judicial manner in which Drs. Cunningham and Lewis deal with each question brought up for their consideration is truly admirable, and is well worthy of the imitation of other observers. We have no doubt the authors have views of their own and "pet theories" like other people; but we have never read a work where the individual prejudices of the authors (if they have any) were so completely concealed as in the report of Drs. Cunningham and Lewis. We regret our space does not permit us to give our readers a fuller account of the work done by these observers. The series of reports (of which that under review is, we think, the sixth or seventh) by Drs. Cunningham and Lewis is alike creditable to the authors and to the late Professor Parkes, who suggested the investigation upon which they are founded. The work done by the department under the control of Sanitary Commissioners with the Government of India contrasts, we regret to say, most favourably with the sanitary work of the Home Government. We do not mean to imply that the work done by Mr. Simon and his able assistants has not been of the most valuable kind, but we do say that the amount of work left undone for want of hands and finances, which are easily available, is a disgrace to the Home Government of a country which can produce such splendid results in one of its distant dependencies, while the home provinces—Scotland and Ireland—have been wholly ignored.

Dr. Tuson's pamphlet also refers to cholera in India. We all admit the disinfecting power of sulphurous acid, but we regret to state that Dr. Tuson's evidence of the "efficacy of burning sulphur fires in epidemics of cholera" is so devoid of scientific accuracy, and rests so completely on *post hoc ergo propter hoc* arguments, that it can have but little weight with practical physicians or sanitarians who practise by the light of science. Sulphur fires may be efficacious, but when many other preventive measures were employed at the same time, as in Dr. Tuson's instances, we consider they are bound to be credited with as much efficacy as the sulphur fires.

We now turn from India to the United States of America—from an old country, so far as cholera is concerned, to a new one—from a country where cholera is endemic to one where it is essentially epidemic, and never endemic. If the contrast between Calcutta and Lahore is great, the contrast between India and the United States ought, at first sight, to be still greater. There is, however, a considerable resemblance between the United States and India. Their great extent of continuous territory, mixed populations (aboriginal, African, and European), their gigantic rivers and great mountain ranges, all afford points of resemblance. The delta of the Mississippi resembles, in many ways, that of the Ganges. The latitude of Bengal for about 10 degrees (25° to 35° north) corresponds with that of part of the United States. It might thus be expected that, so far as the physical conditions which favour the spread of cholera in the non-endemic area of Bengal, corresponding conditions would be met with in the United States. The report before us is one made to Congress after the manner of special reports made to our own Parliament. It contains papers on the introduction of cholera into the United States through the mercantile marine, by Dr. Woodworth; papers and reports by numerous medical men concerning the progress of the disease in 130 localities. These have been arranged by Dr. Ely M'Clellan. The report also contains "A History of the Travels of Asiatic Cholera in Asia and Europe," by Drs. Peters and M'Clellan; and, lastly, a most complete bibliography of cholera, by Dr. J. S. Billings, whose name is sufficient guarantee of its exhaustiveness. Students of the literature of cholera will consider Dr. Billings's portion of the work to be of the greatest value. The propositions put forward by Dr. Woodworth, as premises from which deductions may be drawn which will be widely applied in the exclusion of cholera from a locality, are as follows:—

"I.—Malignant cholera is caused by the access of a specific organic poison to the alimentary canal, which poison is developed spontaneously in certain parts of India (Hindustan).

"II.—This poison is contained primarily, so far as the world outside of Hindustan is concerned, in the ejections—vomits, stools, and urine—of a person already infected with the disease.

"III.—To set up anew the action of the poison, a certain period of incubation with the presence of alkaline moisture is required, which period is completed within one to three days; a temperature favouring

decomposition, and moisture or fluid of decided alkaline reaction hastening the process, the reverse retarding.

"IV.—Favourable conditions for the growth of the poison are found (1) in ordinary potable water, containing nitrogenous organic impurities, alkaline carbonates, &c.; (2) in decomposing animal and vegetable matter possessing an alkaline reaction; (3) in the alkaline contents of the intestinal portion of the alimentary canal.

"V.—The period of morbid activity of the poison—which lasts, under favourable conditions, about three days for a given crop—is characterised by the presence of bacteria, which appear at the end of the period of incubation, and disappear at the end of the period of morbid activity. That is to say, a cholera ejection, or material containing such, is harmless both before the appearance and after the disappearance of bacteria, but is actively poisonous during their presence.

"VI.—The morbid properties of the poison may be preserved *in pass* for an indefinite period in cholera ejections dried during the period of incubation, or of infection matter dried during the period of activity.

"VII.—The dried particles of cholera poison may be carried (in clothing, bedding, &c.) to any distance, and when liberated may find their way direct to the alimentary canal through the medium of the air—by entering the mouth and nose, and being swallowed with the saliva—or, less directly, through the medium of water or food in which they have lodged.

"VIII.—The poison is destroyed naturally either by the process of growth or by contact with acids: (1) those contained in water or soil; (2) acid gases in the atmosphere; (3) the acid secretion of the stomach.

"IX.—It may also be destroyed artificially (1) by treating the cholera ejections, or material containing them, with acids; (2) by such acid (gaseous) treatment of contaminated atmosphere; (3) by establishing an acid diathesis of the system in one who has received the poison."

While all the above principles may be acted upon without danger to any one concerned, we cannot consider that they are so universally received, or their truth so completely proven, that they can be relied upon as infallible maxims. Dr. McClellan, in summarising the opinions of the various local reporters, states that the medical men of the United States who were engaged in dealing with the disease were divided into three parties holding distinct opinions—firstly, those who considered the disease to be Asiatic cholera; secondly, those who believed it to be a special form of cholera which they termed "American cholera," considering it an endemic, not an epidemic disease; thirdly, those who considered

the disease to be "pernicious bilious fever of algid type," "congestive malarial fever," &c. Dr. M'Clellan, as might be expected, adopts the first view as most consistent with the recorded facts. He casts them into a series of propositions very similar in purport to those of Dr. Woodworth, already quoted, and gives numerous examples sustaining the truth of each. While the evidence is nearly all in favour of Dr. M'Clellan's views, yet we must not pass unnoticed the other two sets of opinions. The suggestion (if only a suggestion) that cholera may arise *de novo* in America is rather alarming, especially when we compare its suggested cradle in the delta of the Mississippi with the "home" of cholera in the delta of the Ganges. The fact pointed out by Cunningham and Lewis that cholera and malarious fevers have predilection for river deltas, is another fact in support of the view that there may be a "home" for cholera in America. The other American pamphlets on cholera are eclipsed by the voluminous Government report, and indeed the papers of Drs. Sevier and Woodworth are, to some extent, included therein. The work of Dr. Spinzig deals not only with cholera in America, but is an essay on the subject generally. There is nothing particularly new in the views put forward by Dr. Spinzig, which, as he says, "are gravely conflicting with those generally adhered to by the greatest (*sic*), majority of medical writers."

Dr. Schleisner's paper is written with the usual ability and care for which that author is so justly celebrated.

In conclusion we must express our regret that some of the works noticed above have lain so long neglected—but not unread—in our hands. The works of Cunningham and Lewis and the American Report are substantial and important additions to the literature of cholera.

T. W. GRIMSHAW, M.A., M.D.

The Throat and its Diseases. By LENNOX BROWNE, F.R.C.S., Ed.; Senior Surgeon to the Central London Throat and Ear Hospital, &c. Pp. 351. London: Baillière, Tindall, and Cox. 1878.

Too much praise can hardly be given to the author for the treatise which we have before us. A master of his subject, he has written a book which every practitioner should have in his library. It is

essentially a practical work, and, being written "especially for the use of those engaged in the active practice of their profession, prominence is given to all matters tending to render diagnosis more accurate and treatment more successful, but no attempt has been made to discuss at length questions of purely pathological interest." The author has arranged this work in a manner which, we doubt not, will meet with general approval. To avoid repetition, he has endeavoured to make the earlier chapters as much as possible a key to the rest. He has purposely excluded the history of cases in detail, remarking that, "when read (which is seldom), they are but very rarely of service to the student." In Chapter I., after describing the laryngoscope (Duplay's instrument being the one he prefers), he enters into details as to the best method of examining a patient. This he does by laying down a set of rules as to the several steps to be adopted. The description is exceedingly graphic, and even to one quite unaccustomed to laryngoscopy, the directions given could hardly fail of meeting with success. The causes which lead most frequently to failure are then provided for by special attention being directed to each. To reduce the intolerance of the laryngoscope so frequently complained of by beginners in the art, the author has little faith in the artificial methods generally recommended, though he gives the preference to the sucking of small pieces of ice by the patient for a few minutes. "The gentle hand and encouraging word" will, in his experience, do more than any other training.

Chapters II. and III. treat of the anatomy of the larynx, and the images obtained by the laryngoscope and rhinoscope respectively. In Chapter IV. the semeiology of throat diseases is given, and a tabular form added which will prove of the greatest use in taking notes of throat cases. Dr. Lennox Browne divides the symptoms into—(A) Those which are functional or subjective; (B) those which are physical or objective; and (C) those which are miscellaneous and commemorative; and as this order is maintained throughout the work, great facilities are afforded for reference. The functional symptoms are referred to alterations, if any, in the voice, respiration, cough, deglutition, hearing, senses of smell and taste, and to the presence and character of pain. Under the head of "Cough" he calls attention to the "cough-spots," recently described by Stoerk, whose views are corroborated by the author's experience. These cough-spots are four in number—namely, the interarytenoid fold, the posterior wall of the larynx and trachea, the under-surface of the vocal cords, and the bifurcation of the trachea. He does not

consider "accumulation of mucus in the smaller bronchi causative of cough until it reaches one of the points above mentioned."

In speaking of impairment of hearing as a symptom of throat disease, Dr. Browne expresses the following opinion, which well deserves attention:—

"All surgeons who would be thoroughly acquainted with the study of throat diseases should also acquire facility in examining the auditory apparatus, and should be able to recognise the importance of at least the more common variations in the appearance of the drumhead, the value of tests by the watch and tuning-fork, and how to pass a Eustachian catheter, or to use a Politzer air-bag. It is difficult to comprehend how an aurist can work satisfactorily without understanding the throat, or how one who occupies himself with diseases in the latter region can fail sometimes to be at a loss unless he has worked also at aural surgery."

The physical symptoms are arranged into deviations from the normal, in colour, form, position, and secretion.

In Chapter V. we have a general summary of the therapeutics of throat diseases, which are arranged under the heads of Medical, Surgical, Dietetic, and Hygienic. Under the first of these heads he enters into the relative value of gargles, lozenges, inhalations, and the use of external pigments. Corbyn's inhaler is strongly recommended, and many valuable suggestions as to the use of it are offered. Inhalations, as a rule, should be administered before meals; they should not be taken rapidly, about six inspirations in a minute being quite sufficient. After hot vapour inhalations, the patient should confine himself to the house for half an hour; but the use of a cold inhalation in some cases, just before going out, will procure for the patient an immunity from catarrh which he had not previously enjoyed. In the removal of laryngeal growths, instruments of the most delicate construction are advocated, and special favour is bestowed on Gibbs' laryngeal snare. All unguarded forceps are deprecated, and facsimile copies of drawings of instruments used by Fauvel are given to show that such caution is not uncalled for.

Having thus cleared the ground in the earlier chapters, Dr. Browne enters upon the discussion of throat diseases in detail. He naturally begins with the pharynx, and treats separately of acute, phlegmonous, subacute, and chronic pharyngitis. The various forms of pharyngeal ulceration, abscess, neurosis, and malformations, one and all receive ample and practical consideration. The symptoms of each disease are arranged according to the tabular form already

referred to, and the treatment is classed into constitutional, local, operative (when required), dietetic, and hygienic.

Chapter VII. is devoted to the uvula and tonsils, which are treated of in the same manner. In speaking of surgical interference in acute tonsillitis, the author gives the following as the practice pursued and recommended by him:—

“ 1. Never to inflict unnecessary pain by useless scarification on the surface of a tonsil undergoing general inflammation. 2. Never to make deep incisions unless there is almost certainty of advanced suppuration. . . . 3. To remove the tonsils as soon as they become sufficiently enlarged, in those cases of recurrent quinsy in which there is not chronic enlargement, but in which the tonsil, though diseased, is too small for excision, except on occurrence of the acute inflammation. By this means the disease is at once cut short, and the chance of further recurrence avoided. 4. To recommend removal, on subsidence of the attack, of tonsils chronically enlarged and liable to quinsy.”

The author then proceeds to consider *chronic* inflammation of the tonsils and enlarged tonsils. Chronic follicular disease of the gland, he points out, does not necessarily imply enlargement, “and this occasional absence of hypertrophy is the reason why such cases are so obstinate of cure.” In such cases, whenever active inflammation causing enlargement takes place, it is to be rather encouraged and the gland removed.

“ Chronic enlargement of the tonsils is only to be treated satisfactorily by the one method of excision, and there does not appear any valid reason why there should be two opinions on the question. The operation is simple; it is accompanied with little pain; the result is speedily, and almost always, permanent benefit. All measures of local applications, ‘removal without cutting’ by caustic pastes, injections into the substance of the gland, are useless, and some of them barbarous.”

Dr. Browne gives a drawing of the instrument he uses, but though in skilful hands it may answer very well, it is open to many objections. The blade, which is bevelled off at the side turned from the gland which it is intended to remove, cuts from before backwards, and sometimes considerable force is required to make it go through the gland. The effect of this is that the tonsil is frequently pushed out of the ring of the guillotine by the advancing blade. There is no means provided in the instrument to prevent such an occurrence. The guillotine, generally attributed to Luer, in which the blade cuts from behind forwards, and in which a barbed

double-toothed prong penetrates the tumour and draws it well into the ring of the guillotine before the cutting-blade is allowed to move, obviates the objections alluded to above and is more easily worked. As to the supposed after-effects so frequently raised as objections to the removal of enlarged tonsils, Dr. Browne speaks with no hesitating voice. "The surgeon is often asked," he says, "'Are any ill effects likely to take place after removal of the tonsils? Will the patient be more liable to suffer from cold, or to contract diseases such as diphtheria? Will his voice be likely to suffer?'" To all such questions most positive answers may be given that nothing but good can follow from this operation in suitable cases."

Chapter VIII. takes up the consideration of catarrhal inflammation of the naso-pharynx. The acute forms are subdivided as in similar affections of the lower pharynx. Chronic inflammations recognise but two subdivisions—the moist and the dry. In describing the treatment for this troublesome and very intractable affection, the author alludes first to the ordinary methods which are adopted. The application of medicated glycerines he strongly deprecates, from the irritating effects which all undiluted preparations of glycerine produce in catarrhal conditions of mucous membranes. Gargles of tannin, alum, &c., are considered useless. Atomised inhalations do not reach the seat of the disease, and increase frequently local irritation, whilst snuffs and powders are not suited to the nasal mucous membranes. Dr. L. Browne recommends, at the commencement of the disease, steam inhalations, and if actual inflammatory soreness exist, the inhalation should contain compound tincture of benzoin, with or without a few drops of chloroform. When the mucous secretion is very dry and encrusted, one drop of aldehyde should be added to an inhalation containing benzole, creasote, &c. Lozenges of effervescing chlorate of potash sometimes are useful in the after-treatment for dryness of the throat.

When post-nasal catarrh has been of such long standing that excoriation or ulceration of the mucous membrane has taken place, the nasal douche is recommended. That most generally employed is the anterior nasal douche, such as Thudichum's. Whilst recognising the value of the douche in such condition, Dr. Browne corroborates from his own experience the statement made by Dr. Roosa in his "*Diseases of the Ear*"—that the anterior nasal douche does, in a considerable number of cases, induce acute aural inflammation. The author accordingly strongly recommends the posterior nasal douche; a drawing of the one which he devised, and which

he finds answers every purpose, is given at p. 66 of his work. He claims for the posterior nasal douche that the relief is more rapid and effectual than the anterior; it is not necessary to use it so often; it causes no pain, and so far as present experience goes, it is never attended with any aggravation or production of aural complication. The fluids used with this douche may be the same as those used with the anterior, the author having found special benefit following the use of a solution of Condry's ozonised sea-salt, or of "Sanitas" in water.

Dr. Browne next treats of diphtheria in Chapter IX., and in Chapter X. he enters upon the consideration of laryngeal diseases. Acute and subacute laryngitis and œdema of the larynx are first dealt with; the same order of semeiology and treatment being maintained as in dealing with pharyngeal diseases. Chronic laryngitis he divides into simple, syphilitic, and tubercular.

In the simple variety he points out the danger of its running into the tubercular form, so that the prognosis should always be guarded in such cases. Local applications of astringent solutions are of decided value, and 10 to 30 grains of chloride of zinc dissolved in an ounce of water he prefers. Nitrate of silver is not advocated, and notes of admiration are added to the statement that Von Ziemssen advises the use of the solid nitrate of silver (!), and of solutions of that salt to the strength of 240 grs. (!) to the ounce of water. Under the head of local treatment of syphilitic ulceration of the larynx, the author states, however, that there is no better topical remedy than the daily application of nitrate of silver with the aid of the laryngoscope.

Tubercular laryngitis is next discussed. Dr. Browne declines to enter into the vexed questions as to whether or not there be tubercle actually developed in the larynx, or what indeed is the nature of tubercle wherever developed, but he at least claims the right to infer that, "in those cases in which the eye reveals what has come to be recognised as tuberculous laryngitis before the ear detects the presence of tubercle in the lungs, the disease has primarily attacked the former organ." He, however, expresses his concurrence with Virchow's view that the larynx is the most appropriate place for study of true tubercle. The stages of the disease adopted by the author are the four given to it by Dr. Sawyer of Birmingham:—1. The stage of anæmia; 2. That of tumefaction; 3. That of ulceration; 4. That in which necrosis or caries of the cartilages may arise. The rest of the chapter treats of the symptoms and conditions of

the parts in these stages, and the treatment, general and local, which should be adopted.

In Chapter XIV. Dr. Lennox Browne discusses the subject of benign neoplasms in the larynx. He is evidently not much in favour of operative interference. He agrees with Dr. George Johnson, who "felt it his duty to remark upon the possibility that the larynx may get too much of local treatment." Alluding to cases where portions of the larynx itself, as the epiglottis or a vocal cord have been bodily removed, he congratulates British surgery on the fact that for the most part these abuses of the laryngoscope have occurred abroad; "and it is to be hoped the climax has been reached by removal of the entire larynx—an operation offering but little chance of relief, much less of cure. It appears, therefore, that a few remarks—with a view of inducing members of the profession to withhold their hands from efforts at mechanical removal of what is often, in every sense, a most benign formation—will not be considered inopportune or unworthy of attention." The remainder of the chapter is devoted to the consideration of seven propositions which he lays down in support of this view.

Chapters XV. and XVI. treat respectively of malignant disease of the pharyngo-larynx and larynx, and of laryngeal neuroses. The last chapter gives the differential diagnosis of laryngeal diseases, to which is added a table of them based on the table of semeiology in Chapter IV.

A most useful collection of formulæ for remedies is added to the book, which materially enhances its value; nor should we omit to call attention to the plates—ten in number—drawn from nature by the author himself. They are all of a uniform colour, the reason for which being well given, that the difference of hue seen in different larynges is as complete as the varieties of colour in the skins of men.

The letterpress of the work is admirable, and no pains have been spared to make the work as complete as possible. It well deserves a place in the library of every practitioner.

KENDAL FRANKS.

Sanitary Examinations of Water, Air, and Food. By CORNELIUS B. FOX, M.D., M.R.C.P., Lond. London: J. & A. Churchill. 1878. 8vo. Pp. 508.

THE passing of the "Public Health (England) Act, 1872," and the subsequent division of that portion of the United Kingdom into areas for sanitary purposes, led to the appointment of Medical Officers of Health throughout the country. In many instances a number of the local sanitary authorities united for the purpose of forming the districts over which they had control into combined areas, and appointed Medical Officers of Health of superior attainments, at a reasonably large salary, so as to render them independent of the distractions of private practice. The result of this wise arrangement has been to place the medical sanitary organisation of England, for the most part, in the hands of men like Bond, of Gloucestershire, Haviland, of Northamptonshire, and Fox, of Essex—men of mark, who are daily contributing to the advancement of the science of hygiene.

In Ireland, on the contrary, the sanitary unit of area is the dispensary district, and the Medical Officer of Health is the Dispensary Medical Officer. This organisation, no doubt, has its advantages, for the physician of each district, in paying his daily professional visits, is able to form an accurate opinion as to the sanitary condition of the population entrusted to his care. But he receives a wretchedly small salary, and his time is so fully occupied in other ways that he can never devote himself to the advancement of State Medicine, or hope to make his mark in the sanitary history of his country. Therefore it is that the ideal of a Medical Officer of Health, put forward by the author of the present volume, can scarcely ever be realised in Ireland. Even in England we doubt whether a Medical Officer of Health can often be described as "a physician who is thoroughly conversant with every question affecting Public Health, and who is able to analyse quantitatively water, air, and food; and is so well versed in analytical work as to be able to take his oath in a court of justice respecting any matter requiring the assistance of a scientific expert in State Medicine." "Such a man," Dr. Fox goes on to say, "should be debarred from private practice, and placed over a large area with definite boundaries, such as a county or riding. His appointment should be permanent, so that he may fearlessly and conscientiously perform his duty. Every medical practitioner in his district should act towards him in the

capacity of an assistant. The Medical Officer of Health should, in fact, be the *Head Centre* (!) of all Public Health affairs in each county."

Having adopted this lofty ideal of a Medical Officer of Health, Dr. Fox proceeds, in the work before us, to treat of the sanitary examination of water, air, and food, observing that "the elementary principles on which the greater part of the work of the Medical Officer of Health is based, may be truly said to be the prevention of the pollution of water and of air with filth and its products, and the prevention of the consumption of articles of food deleterious to health." He adds:—

"Pure water, pure air, and good, wholesome, unadulterated food, constitute the pillars which form the tripod on which rests the *mens sana in corpore sano*."

The work is divided into three sections. The first, devoted to the sanitary examination of a drinking water, is really an enlarged third edition of the author's *brochure* on "Water Analysis." He considers that in investigating the wholesomeness, or otherwise, of a drinking water, the Medical Officer of Health should ascertain some or all of the following particulars:—

- (a.) The amount and nature of the organic matter.
- (β.) The existence or not of the products of the oxidation of organic matter, such as the nitrates and nitrites, and in certain cases the quantity of these salts.
- (γ.) The amount and nature of the saline constituent.
- (δ.) The degree of hardness, temporary and permanent.
- (ε.) The existence and the amount, if present, of metals.
- (ζ.) The existence and the amount of purgative salts, such as the sulphate and carbonate of magnesia, or the sulphates of soda and potash.

Chapters I. to XVI. are included in the first section of the book. One of the most important of these is Chapter II., on the Determination of the Amount and Nature of Organic Matter. In it Dr. Fox gives an impartial and full account of all the recognised methods of testing the quality of a water as regards organic matter, especially noticing the zymotic or microzyme test, the permanganate of potash process, the Wanklyn Chapman and Smith process, and the Frankland and Armstrong process. Our readers will remember that the Wanklyn process consists in the estimation,

by means of Nessler's test—an alkaline solution of the iodide of mercury—of the amount of ammonia present in a water before and after it is distilled with a solution of permanganate of potash and a large excess of caustic potash—a mixture which possesses the property of converting organic matter into ammonia. The Frankland process is based on the principle that when the residue after evaporation of the water is burned with oxide of copper, nitrogen and carbon dioxide are eliminated from the organic matter. The amount of organic nitrogen and organic carbon is then determined by measuring the respective volumes of these gases. It is satisfactory to find that Dr. Fox's impartial inquiry into the relative merits of these two processes leads him to conclude that in only one instance out of ninety-nine analyses was there a distinct conflict of opinion, and in this exceptional instance the divergence in the results obtained could be easily explained.

At page 91 Dr. Fox very succinctly answers the question of the relative importance of the presence of nitric acid or of nitrous acid in water. He says:—

“It is sometimes desirable, in the case of waters that are threatened with pollution, to ascertain whether the oxidised nitrogen is in the form of the higher oxide—viz., nitric acid, or the lower oxide, nitrous oxide. If all the combined nitrogen is in the form of nitrates, which contain an atom more of oxygen than nitrites, we know that a complete oxidation of the organic matter has occurred. If the nitrates are accompanied by nitrites, we learn that this oxidation is imperfect, and not thorough. Lastly, if the nitrites abound, we conclude that contamination is near at hand, that the soil is overdone with filth, and that it is able only very imperfectly to cleanse the water. These are the broad lessons learnt by making a discrimination between these two oxides of nitrogen. There are certain points to remember in connexion with this subject as to the power of certain kinds of organic matter and chemical substances occurring in the soil to reduce nitrates to nitrites and ammonia.”

We earnestly commend to Medical Officers of Health a careful perusal of Chapters XIII. and XIV.—the former on Mistakes of Water Analysts and how to avoid them, the latter containing useful memoranda for such officers when performing water analysis. In noticing an unfortunate case in which an analyst condemned one of two specimens of water from neighbouring pumps, which were proved to derive their supply from one and the same well, the author alludes to an extraordinary case recently published by Dr. Charles A. Cameron, where good and bad water would seem to

have been present in a deep well at the same time, the pure water lying in a layer at the bottom of the well, and the impure forming a stratum on the surface. In Chapter XVI. Dr. Fox describes what he calls the "Medical Officer of Health Method of Water Analysis"—a modified form of the Wanklyn Chapman and Smith process.

The second section of the volume before us treats of the sanitary examination of air. In the introductory chapter Dr. Fox closely follows the lines laid down by Dr. Angus Smith in his classical work on "Air and Rain," when speaking of the composition of air. The section is subdivided into three parts. Part I. deals with different kinds of impurities. The air is shown to be deteriorated in quality and defiled by—

1. Respiration and transpiration.
2. Combustion.
3. Putrefactive processes, sewage emanations, and excremental filth.
4. Gases, vapours, and suspended metallic, mineral, and vegetable matters given off by trades and manufactories.
5. Poisons of unknown nature evolved by damp and filthy soil.

In Part II. the detection and estimation of the amount of the most important impurities found in the air are considered. There are two methods of discovering the condition of the air as to purity—one, direct; the other, indirect. By the first, or the direct method, impurities such as the organic and other solid bodies, and the carbonic dioxide present in the air, are detected and estimated quantitatively. In describing the second, or the indirect method, the author of "Ozone and Antozone" is quite at home. By this method the departure of the air from a state of purity is ascertained by an estimation of the amount of ozone and other purifying agents which have not been used up by the organic matter and by the various noxious gases with which it is contaminated.

Part III. gives a sketch of the relations existing between certain meteorological variations in the condition of the air and states of health and disease. The author considers, first, the effects of differences of temperature, moisture, and barometric pressure, direction of the wind, &c., on health; secondly, the meteorological conditions which appear to favour or retard the development of such diseases as seem to be most influenced by climatic variations. This latter subject is illustrated by curves showing the seasonal

prevalence of many diseases. The curve, which represents the death-rates of bronchitis, pneumonia, and asthma (page 351), indicates very clearly the relatively high mortality of pneumonia as compared with bronchitis in the late spring and during the summer and autumn. But Dr. Fox does not comment on this remarkable fact, nor does he allude to the prevalence of pythogenic pneumonia in the warmer months of the year. This is the more strange, as he, for the most part, quotes at some length the opinions of recent writers on the influence of weather conditions on the success of surgical operations, and on the prevalence of the continued fevers, the exanthemata, &c.

Part IV. contains a very full account of the mode of observing the meteorological states and variations in the condition of the atmosphere; but we fail to find the slightest reference to the system of synchronous observations and telegraphic study of the weather now carried into effect in most countries of the Old and New Worlds. The intelligent Medical Officer of Health not only should know how to read his own barometer, and to reduce and correct its readings, but he should also clearly understand that the value of his observations depends almost solely on a comparison with readings taken simultaneously over large neighbouring areas, and on a correct knowledge of the cyclonic and anticyclonic movements of the atmosphere.

In the third and concluding section of the book the sanitary examination of food is considered. There are chapters devoted to the inspection and examination of meat, poultry, game, fish, fruit, and vegetables, corn, flour, bread, and milk. The diseases of live stock, in their relation to public supplies of meat, are summarised as follows (page 400):—

1. Contagious Fevers.
2. Anthracic and Anthracoid Diseases.
3. Parasitic Diseases.

1. CONTAGIOUS FEVERS:

- (a.) Epidemic pleuro-pneumonia or lung fever, peculiar to horned cattle.
- (b.) Aphthous fever, or foot-and-mouth disease (murrain), which affects horned cattle, sheep, and swine.
- (c.) Small-pox of sheep (*variola ovina*).
- (d.) Cattle plague (*rinderpest*, *typhus contagiosus*).

2. ANTHRACIC AND ANTHRACOID DISEASES=MILZBRAND of German pathologists.

They prevail as epidemic diseases localised in particular sections of the country, and are known as—

- (a.) Splenic apoplexy of horned cattle and sheep.
- (b.) The braxy of sheep.
- (c.) The black quarter of horned cattle and sheep.
- (d.) The gloss anthrax or tongue carbuncle of almost exclusively horned cattle.
- (e.) The forms of anthrax which affect the mouth, pharynx, and neck in swine.
- (f.) The apoplexy of swine and their so-called blue-sickness or hog-cholera.
- (g.) The parturition fever of cows, &c.

3. The PARASITIC DISEASES, such as—

“Measles” of the pig; the various, chiefly visceral, diseases of stock which depend on larvæ of the *tænia marginata* and *tænia echinococcus*; the “rot” of sheep; the lung disease in calves and lambs; and the easily overlooked, but highly important, disease of swine, which consists of an infestation (!) of their muscular system by the minute immature forms of the “*trichina*.”

When speaking of the epidemic pleuro-pneumonia of cattle, Dr. Fox mentions the circular of the Public Health Committee of the Corporation of Dublin, addressed in September, 1877, to a great number of medical men; also, the Report prepared in the following October for the Cattle Trade Association of Ireland, by Drs. Macnamara, Macalister, and Reynolds; and, lastly, the rejoinder evoked by this Report from the Dublin Sanitary Association. This all-important question of the fitness or unfitness as food of the flesh of oxen affected with epidemic pleuro-pneumonia was discussed at length in Dr. Cameron's Report on Public Health, in the pages of this Journal for December, 1877 (Vol. LXIV, page 526 *et seq.*).

It is to be regretted that Dr. Fox dismisses so briefly the inspection of poultry, game, fish, and vegetables. Of whatever he does say on these subjects, we can, however, express approval. The chapter on Milk is, on the contrary, full and accurate.

In the Appendix several useful tables are given, and the process of preparing distilled water for analytical purposes is described.

We have not thought it necessary to criticise Dr. Fox's work to any great extent, but its eminently practical, yet scientific, character led us rather to lay before our readers such an analytical notice of the book as would guide them if disposed to add it to their libraries. It is one of the best contributions to the literature of hygiene which has been made within the last few years, and may fairly rank with Hart's "Manual of Public Health," the "Manual of Public Health for Ireland," Dr. Wilson's work on "Hygiene," and the other standard text-books of the day. It is well printed and fully illustrated.

J. W. MOORE.

Lectures on Surgical Anatomy. By JOHN CHIENE, M.D., F.R.C.S.E., F.R.S.E.; Lecturer on Surgery, Edinburgh School of Medicine; Assistant-Surgeon, Edinburgh Royal Infirmary; Examiner in Anatomy, University of Edinburgh. Edinburgh: David Douglas. 1878. Pp. 148.

No better advice can be given to either the student or teacher of anatomy than Dr. Chiene's. He urges the student to impress his dissections on his mind's eye by diagrams drawn from each successive stage, to be subsequently enlarged with coloured chalks. To the teacher he wisely suggests that, to be successful, illustrations must be sketched "during" lecture. We fully agree with him in both these precepts. Anatomy that cannot be carried in the eye will serve but few turns in practical surgery, whatever use it may be in competitive examination. Nor can a teacher hope to convey any clear notion of intricate details, who cannot reduce them to the form of a diagram as he describes. In proof of his appreciation of the truth and of the importance of his precepts, Dr. Chiene offers the student a series of plates, 31 in number, which contain illustrations that include a wide range of surgical anatomy, many of which, in finish and artistic character, are far above the style of mere diagrams. The lectures which these excellent plates illustrate are pleasantly written, clear, and concise. Their anatomy, too, is generally correct and exact. Here our commendation must stop. We are forced to quarrel with much of Dr. Chiene's surgery. For instance, we cannot adopt his teaching when he writes thus:—"Fracture of the anatomical neck of the humerus is generally a separation of the epiphysis before complete ossification has occurred." Here the author clearly ignores the well-known extra

and intra-capsular fractures of the humerus, while he appears ignorant of the equally well-known details of the ossification of the bone and of the epiphysary displacement. Again, from every feature of the description of dislocations of the humerus at the shoulder, we dissent. "That the primary displacement is always, in the first place, downwards into the axilla;" that in the commonest injury "the head of the bone passes between the subscapularis and teres minor muscles into the axilla;" and that the head of the bone lies "external to and at a lower level than the coracoid process." All these assertions are unsupported by facts; further, they are in direct opposition to the facts which Crampton, Malgaigne, and many others have recorded; they are, to take the author to task in his own country, contrary to the facts demonstrated by the specimens exhibited in the Pathological Museums of Edinburgh. What is the meaning of the following passage, in which the author discusses the determining cause of dislocation backwards, beneath the spine of the scapula?—"There is less resistance to the passage of the bone forwards, as the displacement of the vessels and nerves and fat in the axilla is a much easier matter than displacement or rupture of the powerful subscapularis and teres major muscles, which are the obstacles to the passage of the bone backwards under the spine of the scapula." What have the vessels and nerves and fat to do in either letting or hindering any dislocation? Again, does the teres major offer any such resistance as the author attributes to it in dislocation of the humerus backwards?

In discussing the subject of Colles' fracture of the radius, to which a greater share of space is given than to any similar surgical subject, the author reproduces the substance of an article of his in the *Edinburgh Journal*, Vol. XIX., Part 2, which has impressed itself on our memory by the strange distinction adopted by the writer between the terms penetration and impaction, as applied to fractures of bone, and by his extraordinary conclusions as to the essential features of fracture of the lower end of the radius. "Penetration is the passage of the one fragment into the other; when the distortion cannot be remedied by any justifiable force by the surgeon, then impaction has occurred." Starting with this most illogical dogma, the author indulges his fancy in a chain of reasoning which brings him at last to the conclusion that "a continuance of the force drives the carpus upwards into the cancellated tissue of the radius; it there becomes locked between the anterior and posterior surfaces of the bone, and will in such a position be

firmly impacted. It is grasped by the radius, and held in position by the flexor and extensor tendons surrounding the bone. The more the surgeon pulls, the more tense do these tendons become, and the more firmly the carpus is held in its abnormal position." Yet almost immediately the author mildly says:—"I am not aware that any such case has as yet been described." Surely the author of a text-book intended to furnish the student with his first impressions of the characters of familiar injuries, should avoid new-fangled notions such as these, even though they are his own conceptions, until he can produce even a scintilla of evidence in their support.

Étude sur les Invaginations Intestinales Chroniques. Par le Dr. F. G. RAFINESQUE. Accompagnée de Tableaux Statistiques et d'une Planche Lithographiée. Paris: J. B. Baillière et Fils. 1878. Pp. 282.

THE subject of this study is that of simple invagination, or invagination uncomplicated, or, at all events, not so till a late period, with strangulation. Two remarkable cases which the author had in early life observed in the practice of his master, Archambault, turned his mind towards a research into the literature of the subject. The result has been a collection of sixty-three parallel cases, many of them from *Guy's Hospital Reports*, and from these a very compendious monograph has been worked up with the completeness which so often characterises the French in similar undertakings. The most carefully-written chapters are those which treat of the symptoms, progress, and diagnosis of the lesion. In the portion referring to treatment a large space is devoted to the discussion of the indications for gastrotomy.

Guy's Hospital Reports. Third Series. Vol. XXIII. 1878. Pp. 421.

AN interesting article in this volume is that by Fred. Taylor, M.D.—"A Contribution to the History of Idiopathic or Pernicious Anæmia, with Cases"—in which he shows that the complaint lately described by Biermer under the name of progressive pernicious anæmia, and spoken of by German authors as a newly-discovered malady, is really none other than the idiopathic anæmia which found a place in Addison's lectures nearly forty years ago.

Another very interesting communication is that by Dr. Wilks—"An Account of some Unpublished Papers of the late Dr. Hodgkin"—in which will be found, as memorials of his far-seeing genius, essays "On Animal Heat and the Treatment of Pyrexia by Cold Baths," and "On Evolution and the Origin of Species." There is also an article, and two illustrative plates, on Mr. William Stokes' modification of Gritti's amputation above the knee-joint.

On Asthma: its Pathology and Treatment. By J. B. BERKART, M.D. London: J. and A. Churchill. 1878. Pp. 264.

THE main object of this book is to combat the prevalent theory of asthma, the nervous origin of the disease, and in particular the reality or the possibility of a bronchial spasm. A close examination of all the facts connected with asthma has enabled the author to conclude that asthma is merely one link in a chain of morbid processes that commence with a more or less insidious inflammation of the pulmonary tissue, and terminate with bronchiectasis and emphysema. The book is clearly and forcibly written, and is one which will repay careful and complete perusal.

Contributions to the History of Medical Education and Medical Institutions in the United States of America, 1776-1876. By N. S. DAVIS, A.M., M.D. Washington, 1877. 8vo. Pp. 60.

To all who are either directly or indirectly engaged in the great work of medical education, and who have at heart the advancement of the profession of medicine, this historical review of the progress of medical education and institutions in the United States during one hundred years—from 1776 to the year of the Centennial Exhibition at Philadelphia—cannot fail to be of interest. Dr. Davis may be congratulated on the manner in which he has prepared this special report for the United States Bureau of Education.

Diagrams for the Record of Physical Signs. Designed by W. R. GOWERS, M.D. London: H. K. Lewis. 1878.

THESE diagrams are admirably adapted to facilitate the graphic representation of physical signs observed in cases of thoracic or abdominal disease. They consist of twelve duplicate outline draw-

ings, delicately shaded in blue, of the front and back of the trunk respectively. The proportions of the outlines are based on the average of a series of measurements, in order that the diagrams may be used for either sex. The nipples and umbilicus are not indicated on the diagrams in consequence of the frequent variation in their position. In an introductory note Dr. Gowers suggests a method of inserting a representation of physical signs on the diagrams. Thus, defective resonance may be represented by shading; the position of the cardiac impulse may be denoted by a cross or crosses; the site of murmurs may be indicated by the letter *m*, placed before or after I, or II, according to their relations to the heart-sounds—thus, *I m* would signify a systolic, *II m* a diastolic, and *m I* a presystolic murmur.

At the commencement of the hospital session we heartily recommend these diagrams to the attention of clinical students.

Traité de Climatologie Médicale. Par le DR. H. C. LOMBARD, de Genève. Tome I. et II. Paris: J. B. Baillière et Fils. 1877. 8vo. Pp. 552-694.

WE have received the first two volumes of what promises to be one of the most comprehensive treatises on Medical Climatology which has ever been published. The name of the distinguished and veteran author of the work, Dr. H. C. Lombard, of Geneva, is so widely known both on the Continent and in this country, as necessarily to attract many readers; but the subject-matter—*Aër pabulum Vitæ*—needs not the magic of an illustrious name to command the earnest attention of the student of medicine and the collateral sciences.

Volume I. includes two "Books"—the first, consisting of six chapters, gives a very fair account of Meteorology under the following headings:—

- (1.) Chemical Composition of the Atmosphere.
- (2.) Temperature of the Air.
- (3.) Atmospheric Humidity.
- (4.) Winds.
- (5.) Atmospheric Electricity.
- (6.) Atmospheric Pressure.

On this last-named topic, we regret to say, the teaching of Dr. Lombard is quite out of date, as it puts cause for effect and vice

versé in speaking of the relation of barometrical readings to the direction and force of the wind. For example, he says:—

“Outre les circonstances que nous venons de signaler, il en est d'autres qui exercent une influence très-notable sur la pression atmosphérique. Telle est, en premier lieu, la direction des vents. En effet, lorsque soufflent les vents du nord et surtout ceux du nord-est, l'on voit presque toujours monter la colonne mercurielle, à moins cependant que leur intensité n'atteigne la proportion d'une tempête, auquel cas le baromètre baisse par les vents du nord” (p. 181).

Such a passage as this must have been penned before the enunciation of Buys Ballot's law, and in ignorance of the doctrine of isobars and barometrical gradients. All modern meteorologists know that the direction of the wind depends on the distribution of atmospherical pressure, or, in other words, on the arrangement of the *isobars* (lines of equal pressure), and that the force of the wind is determined by the proximity of the isobars to each other, or, in other words, by the steepness of the *barometrical gradients*.

The second “Book” included in Volume I. treats of “Medical Climatology,” and embraces five chapters, the respective subjects of which are—the characters proper to all climates, the distinctive characters of different climates, the influence of different climates on health, the physiological and pathological influence of different climates. As the result of a synthetical study of the subject, the author shows that it becomes possible to differentiate the effects produced in each season by atmospherical influences on the human frame, and to recognise a certain degree of *hyperæmia* as corresponding to winter, a tendency towards *plethora* to spring, a state of *hypohæmia* to summer, and, lastly, one of *anæmia* to autumn. We can easily understand, further, how readily this *imminence morbide*, as Michel Lévy terms it, can pass into actual disease; and so we proceed naturally from the theoretical study of the physiological and pathological influences exerted by atmospherical conditions, to the practical knowledge of those diseases which become developed in the annual cycle of the seasons and in different climates.

While speaking of this subject, Dr. Lombard suggests the word “*morbidity*” as a substitute for morbidity. That some such term is needed, no one will deny. Some time ago a reviewer in the *British Medical Journal* spoke of that “barbarous word *morbidity*, which, in sound at least, is suggestive of *measliness*.” “*Morbidity* even,” he added, “would be better, although not a pretty word.” We

are induced to quote the entire passage in which Dr. Lombard proposes the use of the word "morbidity." He writes (Vol. I, p. 393):—

"N'est-il pas évident que lorsqu'on parle d'hypérémie, de pléthore, d'hypoémie et d'anémie, l'on désigne des états morbides imminents? C'est, en effet, ce que l'on voit apparaître comme conséquence naturelle du cours annuel des saisons, alors qu'aux modifications physiologiques succèdent certaines maladies qui se reproduisent à époque fixe avec autant de régularité que l'apparition des hirondelles au printemps, ainsi que le disait Sydenham du choléra sporadique."

"C'est ce développement régulier de la maladie que j'ai désigné sous le nom de *morbidité*, tiré de l'adjectif *morbide*, auquel mon condisciple Littré donne le sens de ce qui a rapport à la maladie. Il est bien à désirer que ce substantif trouve place dans une nouvelle édition de ce Dictionnaire si complet pour tout ce qui concerne les termes médicaux. Dans tous les cas il est bien préférable au mot de *morbillité* adopté par les Allemands et qui peut être confondu avec l'adjectif *morbillieux* qui se rapporte à la rougeole (*morbilli*)."

The foregoing and similar considerations lead the author to the great question of the "Geographical Distribution of Disease," which occupies the whole of Volume II., forming one part only, it would seem, of Book III. of the entire work. The three chapters into which the second volume is divided treat of polar climates, cold climates, and temperate climates respectively. The consideration of the geographical distribution of disease in tropical climates is apparently postponed to Volume III., which has not yet reached us.

It would be impossible in these pages to give an adequate analytical review of Dr. Lombard's *chef d'œuvre*, as the present work undoubtedly is. We can only say that it fitly takes its place beside Quetelet's "Physique Sociale de l'Homme," to which it presents many points of resemblance in its comprehensiveness and the elegance of its diction. There is a touching pathos in the dedication of this work of a lifetime—"À la Mémoire vénérée de mes maîtres Andral et Louis, et de mes amis Sir James Clark et Quetelet."

J. W. MOORE.

PART III.

HALF-YEARLY REPORTS.

REPORT ON MEDICAL JURISPRUDENCE.

By STEWART WOODHOUSE, M.A., M.D., Dub.; Lecturer on
Institutes of Medicine, Carmichael School of Medicine.

A NEW SIGN TO DETERMINE WHETHER A NEW-BORN CHILD HAS BREATHED.

WE are indebted to the *London Medical Record* for the following account of Professor Giovanardi's researches, published in the *Rivista Sperimentale di Medicina Legale* :—

“ It is no longer a matter of doubt that a child may live some time out of the uterus without breathing ; and in some exceptional cases an expert may be able to prove that extra-uterine life has been maintained, although respiration may not have been effectually performed. It is also admitted that the only certain proof of extra-uterine life is to be found in pulmonary respiration, which can scarcely be initiated or established without producing in the respiratory organs certain indelible changes, on which the different forms of the *docimasia pulmonaris* are based.

“ In order to determine whether a child has been born living, we look for the necessary proofs in the colour, volume, consistency, and external aspect of the lungs, in their absolute weight, and the quantity of blood contained in the pulmonary vessels ; but for the most certain proof, the medical jurist relies upon the results of the application of the hydrostatic test.

“ The method of applying this test, the principles on which it is based, and the cautions required for avoiding erroneous inferences from its employment, are so generally known that any detailed description is here unnecessary.

“ As a result of the act of breathing, it is well known that the lungs of a child become lighter than water, and that they float on it either wholly or partially, according to whether the respiration has been complete or partial. All the authorities on legal medicine

agree in the following propositions:—1. That the floating does not necessarily prove that the lungs have breathed; and 2. That the fact of their sinking in water does not indicate in all cases that the child has been born dead.

“The floating of the lungs of a child which has not breathed may be due—1, to artificial inflation; 2, to putrefaction; 3, to emphysema; 4, to congelation; 5, to their having been preserved some time in alcohol.

“On the other hand, the sinking of the lungs which have breathed may depend—1, on a general sanguineous congestion of the pulmonary vessels; 2, on hepatisation or tuberculous or other deposits in the lungs; 3, on advanced putrefaction, with destruction of the air-cells; 4, on the act of boiling, or any cause which increases the density of the texture of the lungs.

“These, so far as the author is aware, are the only possible conditions which, according to medico-legal authorities, can give rise to the floating or sinking of the lungs independently of the act of breathing.

“Professor Giovanardi has discovered another cause of the complete submersion of the lungs in water in cases in which respiration has been performed, and he has suggested a method by which this cause may be recognised, and an opinion given on the question whether the child was or was not born living.

“With the view of demonstrating to the students of his class of legal medicine the method of applying the hydrostatic test on these occasions, Dr. Giovanardi removed the lungs from the chest of a child eight days old. The organs were not inflamed or congested; they crepitated on pressure, and readily floated on water. After two days' immersion, it was observed that they had partially sunk. Their buoyancy decreased daily, and after the lapse of thirteen days they were lying at the bottom of the vessel. In a second experiment, the lungs of a child which had lived five hours were found to be fully distended with air from breathing. When placed on water they floated, but after remaining in water eleven days they had spontaneously sunk to the bottom of the vessel. In a third case, of a child of five days, the lungs placed on water sank to the bottom in nine days. In a fourth case, in which the child had lived thirteen days, they were found at the bottom of the vessel in fourteen days. In the fifth case, the new-born child had lived twenty hours and had fully breathed. The lungs were removed from the chest, and the right lung was separated from the

left. The right, placed in water in an entire state, floated; the left, divided into three portions, also floated. In eight days two of these portions had sunk to the bottom, while the right lung only sank after eleven days.

“The lungs which had thus spontaneously sunk in water presented the following characters: increase of volume and of absolute weight, loss of crepitation, and a pale bluish colour.

“Other experiments were performed on the entire dead body. 1. The body of a child which had lived seven days was immersed in water and left there for twenty days. It was then removed, and the lungs were taken from the chest and examined. They were reddish coloured, crepitant and soft, and floated when placed in water. 2. In the case of another child, which had lived three days, the body was not submerged until after the cavity of the chest had been opened, and the water allowed free access to the lungs. After twenty days the lungs were found to have become pale, heavy, and increased in bulk. Placed on water, they sank to the bottom of the vessel. They were removed, and submitted to pressure. A large quantity of liquid was thereby forced out of them. They immediately sank when placed on water. These lungs were removed and dried in the sun—a process which occupied a period of three days. Placed on water, they again floated.

“Lungs taken from another subject were dried by a strong fire until almost carbonised. They underwent a great reduction in volume. While drying, water gradually escaped from them, and when subsequently tested they floated on water.

“For the sake of comparison, the lungs of a child born dead were placed on water, and they immediately sank. They were removed and examined, after fifteen days' immersion. Their volume and weight had but slightly increased. The interlobular grooves were scarcely perceptible. When the lungs were placed on water, they sank; when removed and dried, either by a fire or in the sun, and again placed on water, they sank to the bottom of the vessel.

“As a result of boiling portions of lungs which had breathed, it was found that on contact with water they rapidly sank.

“The conclusions drawn from these experiments by Professor Giovanardi are as follows:—

“1. The lungs of a child which has breathed sink in water, if allowed to remain eleven or twelve days immersed in that liquid.

“2. When the entire body of a child which has breathed is

placed in water, the chest being closed, the lungs will continue to float, up to their entire destruction by putrefaction. When the cavity of the chest is opened so that the water may have free access to the lungs, the lungs will sink after fifteen or twenty days' immersion of the body.

"3. In cases in which the body of a new-born child is found cut to pieces, the chest opened, and the lungs exposed (to the action of water?), an expert must not infer that the child has not breathed because the lungs sink in water.

"4. By drying the lungs, an expert may determine whether the sinking in water is owing to their not having breathed. If they have breathed, and have been several days immersed in water, they will, after drying, float, while if they have not breathed they will in the dried state again sink.

"5. In reference to this condition, an expert may sometimes form an approximate judgment of the time which has elapsed since the death of the new-born child. Thus spontaneous submersion takes place in from eleven to fifteen days, and some days earlier if the breathing has been imperfectly performed, or if the lungs are cut in pieces or are in a putrefied state."

RARE CASE OF SUPER-FETATION.

Mr. Lumley, of Birmingham, has reported the following case:—A woman was delivered of a full-grown healthy male child. On the third day after her confinement she came down stairs and resumed her ordinary employment, feeling quite well. On the seventeenth day after her *accouchement* she felt the sensation of something moving in her abdomen, and in a few hours twins were born, a boy and girl, both of them being full-grown, and quite healthy. The placentæ were softened, and of the consistence of jelly, having to be scooped away with the hand. The mother and three children did well. A most remarkable feature in the case was the entire absence of "pains."

MEDICO-LEGAL EXAMINATION OF HUMAN HAIR.

Professor Oesterlen, of Tübingen, has published a *mémoire* on the importance of examining hair in medico-legal cases. The first point is to decide whether the hair be human or belonging to an animal. The hairs of animals have larger epidermic scales, a medullary canal much smaller in proportion to the cortical part, a rapid tapering toward the root as well as towards the free end, and

an abrupt and well-marked change of colour where the colour of the animal's skin changes. Human hair, if long in contact with decomposing organic matter, becomes darker than its natural hue; but if buried in the ground, it tends to become lighter from the bleaching effects of the acids in the humus. Dyed hair may be readily recognised by the uniformness of the coloration, and the original colour is restored by the addition of a drop of nitric acid, which destroys the sulphuret of lead and bismuth, the bases of nearly all hair-dyes.

A NOVEL CAUSE OF DEATH.

In the *Vierteljahrsschrift für gesichtliche Medicin*, quoted by *Medical Press* of October 2, Dr. Bremuse gives an account of a man who literally burst, split his diaphragm in two, and died after swallowing four plates of potato soup, numerous cups of tea and milk, followed by a large dose of bicarbonate of soda to aid digestion. His stomach swelled enormously, and tore the diaphragm on the right side, causing immediate death. We do not know of any similar case on record.

THE EFFECT OF CERTAIN POISONS ON THE TEMPERATURE OF THE BODY.

Dr. Tamassin, Professor of Medical Jurisprudence in the University of Pavia, has published an account of experiments he has undertaken with the view of determining the effect of poisons upon the temperature. In the case of arsenic, a dog had three grains of arsenious acid injected into his thigh, and in thirty-nine minutes he was dead. The temperature fell from 40° C. (104° F.) to 37·7° at the moment of death—a difference of 2·3° C. (4·34° F.). In a second experiment also on a dog, where two grains were injected, death took place in seventy-five minutes, and the temperature fell 4·1° C. (7·38° F.). In a rabbit which died in an hour after arsenical poisoning, the difference in temperature was 3·2° C. (5·76° F.). In the case of phosphorus the loss of heat was still more marked. In three experiments on dogs, when four grains of phosphorus were given, the thermometer fell almost equally, the maximum fall being 4·7° C. (8·46° F.). In a rabbit which died in eight and a half hours the thermometer fell 7·1° C. (12·78° F.).

In the case of strychnia the rise is even more rapid than the fall in the cases of arsenic and phosphorus. Experiments were made on three dogs—the first died in forty minutes, when his tem-

perature had risen 3° C. (5·4° F.); the second in thirty-three minutes, the temperature rising 2·5° C. (4·5° F.); and the third in twenty-nine minutes, the temperature rising 3·3° C. (5·94° F.). These researches suggest that the clinical thermometer may hereafter aid diagnosis in cases where there are suspicious symptoms of poisoning.

DIALYSED IRON AS AN ANTIDOTE FOR ARSENIC.

Mr. R. V. Mattison (*American Journal of Pharmacy*) has performed some experiments to test the value of a solution of dialysed iron as an antidote for arsenic. He found that a pure solution of the iron compound had no effect upon a pure solution of arsenic, nor upon one containing hydrochloric acid; but if added to the mixture of a solution of arsenic and an artificial gastric juice, the arsenic was rendered insoluble. This action of the gastric juice is owing to the neutral salts which it contains; hence, whenever dialysed iron is administered as an antidote for arsenic, it should be mixed with common salt. This acts by precipitating from the dialysed iron solution ferric hydrate (sesquihydrate of iron), which has long been used for this purpose. In dialysed iron, therefore, we have a compound from which may be immediately obtained ferric hydrate in a form suitable for administration at once. Of course the arsenical compound, insoluble or but slowly soluble in the fluids of the stomach and intestine, should be removed as soon as possible from the stomach by an emetic or stomach-pump, and from the intestine by a cathartic.

POISONING BY CARBOLIC ACID INJECTION.

Dr. Rheinstädler, of Cologne, reports the following case:—A large fibroid tumour had been removed from the uterus of a woman, and 1 per cent. solution of carbolic acid was injected into the wound daily, and also into the vagina. After one of those injections it was observed that the fluid did not return, and immediately the patient became collapsed. There was loss of consciousness, tremor, paleness, clammy sweat, laboured respiration, and imperceptible pulse. Ether and musk were injected subcutaneously, and the patient rallied. Next day the patient entirely recovered, with the exception of vesical irritation and cystitis, which lasted about ten days. This symptom was probably due to the rapid elimination of the large quantity of carbolic acid, as it was calcu-

lated that 75 grains had found its way into the cavity of the abdomen.

In another case of poisoning by carbolic acid the patient recovered after swallowing about 150 grains in a watery solution. It has been remarked that the symptoms are more intense when the acid is subcutaneously introduced than when absorbed by the mucous membrane of the stomach and rectum. A concentrated solution is absorbed more slowly than a dilute, owing to its caustic coagulating action. It is eliminated by the urine, which becomes of a dark-green colour, as carbolates rather than as free carbolic acid. There is a tendency to paralyse the pneumogastric nerve-centre, and also the respiratory centre in the medulla, so that death results from asphyxia—not unfrequently there is spasmodic stricture of the œsophagus. The minimal fatal dose appears to range between two and four drachms. A mixture of sugar and lime is said to be the best antidote if the acid cannot be rapidly and completely removed from the stomach.

LEAD POISONING BY FLOUR.

Dr. Alford, Medical Officer to the Taunton Rural Sanitary District, noticed a local outbreak of lead poisoning for which he could not account. He analysed the water, cider, &c, but failed to find any trace of lead. He found, however, that there was one circumstance in common amongst the families that suffered—viz., that they all had their flour from the same mill. On analysing the flour he found lead, and on inspecting the mill he discovered that inequalities in the grinding stones had been filled up with lead. As the lead was removed the disease gradually disappeared. In country districts this source of lead poisoning should not be overlooked.

TREATMENT OF HYDROCELE BY ELECTRO-PUNCTURE.

VON FRIEDENTHAL has obtained good results from electro-puncture in the treatment of hydrocele. He introduces gold needles—not into the sac, but into the skin—a current is allowed to pass for three minutes, and he repeats the sitting every second day. Five or six operations are generally sufficient to produce complete absorption of the liquid. The hydrocele reappears in certain cases, but the same objection may be made to the treatment by injections of iodine.—*L'Union Médicale*.

S. W.

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

SESSION 1877-78.

President—G. F. WALES, M.D.; F.R.C.S., Ed.

Hon. Secretary—WILLIAM WHITLA, M.D.

G. F. WALES, M.D., President, in the Chair.

Gastro-Elytrotomy and Ablation of the Uterus versus the Cæsarean Section.

PROFESSOR DILL said: Mr. President,—Having at a former meeting of the Society submitted for consideration the subject of podalic version, and having recommended its practice when other means had failed—to-night, I beg to offer a few observations on a couple of operations which have been proposed as substitutes for the Cæsarean section. These operations are known by the names of (1) gastro-elytrotomy and (2) ablation of the uterus; and although they have not been attempted here or in these countries, yet, as they have been performed, and that successfully, in the United States of America and in Germany, I think I am justified in claiming for them at least your careful attention. I may say here that the only mention I find in any of our text-books or English works on midwifery, is by Dr. Playfair, who, in his "Science and Practice of Midwifery," gives but a very brief account of gastro-elytrotomy, whilst extirpation of the womb is never alluded to, so that it is from foreign works and periodicals the fullest information may be obtained regarding both operations.

When we consider the great mortality which is associated with the Cæsarean section, we are only surprised at finding obstetricians not more generally and zealously pursuing inquiries towards devising other operations by which greater confidence might be entertained by the operator, and higher hopes of recovery held out to the mother.

The Cæsarean section may be still admitted to be the most serious operation which the obstetrical surgeon is called upon to perform, and

even supposing the patient may recover, she is in danger of becoming again pregnant, of rupture of the old uterine cicatrix, and of escape of the ovum into the cavity of the abdomen, whilst the Cæsarean section must be resorted to again.

The first operation which was suggested and practised as a substitute for the Cæsarean section was symphysiotomy by Sigault, in the year 1768, and from which for a time great hopes were entertained. Very soon, however, this operation got into sad disrepute, and it was given up because of even a higher mortality than was found to follow the Cæsarean section.

In comparison with these two very serious operative procedures, I would beg to draw attention to two other operations (which are considered by those who have a right to form and express an opinion on the matter) as more hopeful. These are, as already stated, "gastro-elytrotomy" and "ablation or extirpation of the uterus." Gastro-elytrotomy was performed by Jürg, Ritgen, and Buden, and it has been recently revived and practised by Dr. Thomas of New York. I may here be allowed to state the different steps in the operation, and I shall do so as briefly as possible. It is considered necessary, in the first place, or before the operation is entered upon, that the os uteri should be either dilated or dilatable.

The first step in the operation which the surgeon must make is an incision from the anterior superior spinous process of the ilium to the symphysis pubis, and through the abdominal wall until he reaches the peritoneum. The second step is, the peritoneum, in place of being incised, must be disengaged, raised and turned back with the finger or with the handle of the knife, so that a free entrance to the vagina may be made, and the os uteri easily reached. The third step is, the os and cervix uteri should now be made to point toward the wound, which may be done by drawing them into the iliac fossa by means of a blunt hook in one hand, and with the other depressing the fundus uteri, and thus, by these two apparently opposing forces, the os uteri is brought into the open wound. The fourth step in the operation is the introduction of the hand into the uterus, and the child is brought away by turning; or the forceps may be applied when the head presents, and the child extracted by this instrument.

The advantages of this operation over the Cæsarean section are at least theoretically obvious:—1st. The peritoneal cavity is not penetrated, and consequently no blood or other fluid can enter the peritoneum; 2nd. The uterus is not incised, and therefore the danger of peritonitis and metritis is much reduced; 3rd. With our present knowledge of ovariotomy and its results, no one need really say that there is anything in the operation of gastro-elytrotomy to prevent it from being favourably entertained and practised under certain circumstances, and with good hopes of

success. And now, as we are to suppose our patient does recover, we must expect that she may become pregnant again, and then, as in the case of the Cæsarean operation, the same difficulties and dread dangers must be encountered a second time. And because of this, Dr. Edward Porro has proposed a measure by which a recurrence of pregnancy is absolutely prevented. He proposed to himself and resolved upon the operation of ablation of the uterus, which he performed with the satisfactory result of the recovery of the mother. So lately as in the year 1876, M. Rein published a paper with the title "Extirpation of the Gravid Uterus as a Substitute for the Cæsarean Section," the result of experiments upon some of the lower animals. M. Rein claims for this operation the following advantages:—1st. Only a very trifling or insignificant amount of hæmorrhage during or after the operation; 2nd. No important organ capable of lesion is retained in the abdominal cavity; 3rd. The impossibility of a fresh or repeated pregnancy.

Professor Spraeth has reported the case of a patient who had undergone this operation, and he states that the woman made a rapid recovery.

And now, Mr. President, with your permission, I may place the whole matter before the Society by way of a query. Is either gastro-elytrotomy or ablation of the uterus to be accepted as superior to, or are they to be supposed as giving the mother any advantage over, the Cæsarean section? For my own part, I would answer that, with our very limited knowledge I should not too hastily come to a conclusion, much less reject the proposals as not to be entertained, for experience alone can solve the difficulty; and further, I am disposed to say that obstetricians should not pronounce too severe judgment against gastro-elytrotomy and complete extirpation of the womb, as they have been already performed with some success, and as they are at present our only substitutes or counterpoise to the extreme dangers of the Cæsarean section. Moreover, these operations are yet but upon their trial, and it is to be hoped that further experience will justify the sanguine expectations held out to us by Drs. Skene and Thomas, and Professors Ritgen, Spraeth, and Baudelocque, the expression of whose opinions on any of the great questions springing either from obstetric medicine or surgery should not be lightly esteemed by us.

We are but on the threshold of this inquiry, and if any real advance is to be made it can only be by adopting a persevering attitude, and by a careful observation and study of clinical facts and operative results, without drawing from them too hasty or too positive deductions.

DR. BROWNE said from the paper he learned that the peritoneum was treated in exactly the same way as in ligature of the external iliac artery, and he understood that Dr. Dill advocated the operation on the ground that that membrane was not injured. As for himself, he always saw

that the peritoneum was injured. He gave the statistics of Storer of the results of ligaturing this vessel: out of 24 cases, 16 died. His incision was through the rectus muscle, from umbilicus to pubis. As far as the removal of the uterus was concerned, he believed there was as much danger of peritonitis from the operation as in the Cæsarean section. He believed that in all such cases the spray should be used, and showed its results from the success of Spencer Wells, and others.

DR. JOHN MOORE thought he could not throw much light upon the subject, which was an obscure one, and likely to remain so. The operation of the Cæsarean section was of so rare occurrence that only one or two in a generation were called upon to perform it—a state of things preventing any one medical man having anything but a very narrow and limited experience. Many years ago it was the lot of a medical man to operate in Belfast, but no case had turned up here since, except one in hospital, and for various reasons the operation was deferred until too late. To one group of the cases demanding the Cæsarean section—malignant disease of the uterus—the operation recommended by Dr. Dill was inapplicable, the difficulties then being so great that he believed no man was justified in attempting it.

DR. FAGAN felt he was anticipated in his remarks by the previous speaker. He knew little about the subject matter of Dr. Dill's paper, and felt obliged to him for bringing it before him. He thought one should be very careful, indeed, before undertaking any operations like those discussed; but when they were forced to it, the choice lay between two very serious operations, and for his part he would say he was decidedly in favour of a clean cut. Hole and corner operations he condemned, and thought quite too much was made out of the fact that the peritoneum was not opened. He believed the more freely this was opened the better. As regarded ablation of the uterus, he thought Dr. Dill's suggestions of more value, and should be put in force when a case presented itself.

DR. DEMPSEY thought that, from what he had heard, the operation was a scientific one, and if properly performed he did not see that any vessels of importance would be injured. He thought that the opening of the abdomen and the removal of both ovaries through their respective *fossæ* would be decidedly more dangerous.

DR. SPEER remarked that abortion or premature labour was not mentioned as a substitute for the more serious and difficult operations proposed. He detailed the case of a woman who had craniotomy performed in a former labour. He induced labour at the end of the seventh month after she had become subsequently pregnant, and she had now a healthy boy growing up.

DR. WHITLA (Honorary Secretary) thought that as regarded the operation of ablation of the uterus as a preventive for pregnancy, there was one operative procedure decidedly less formidable—*i.e.*, removal of

both ovaries through the wall of the vagina, as practised by the American surgeons. He gave the results of the operations, and believed that where a *cutting* operation was demanded as a preventive of pregnancy, it should have the preference.

DR. M'CONNELL thought, from what he had heard of the matter, he would decidedly wait for further light before he made up his mind to give the preference to any substitute for the Cæsarean section.

DR. ESLER agreed with the remarks of a previous speaker, that the operation comes so seldom that it is hard for one man to have much experience. He saw many disadvantages in cutting from the middle line—danger to important vessels and nerves. As regarded the question of ablation, he would rather deal with it in a more conservative manner, and recommended the use of injections to prevent pregnancy. He narrated a case bearing upon this point.

DR. WALES (President), in thanking Professor Dill personally and also on behalf of the Society, said he hardly felt competent to express an opinion on the nature of the operations. He had watched the mortality of ovariectomy for many years, and saw that even now it was continuing to grow less and less; but he was sorry to say that he failed to see the revolution in obstetric surgery which he had expected would follow the splendid results of Wells, Keith, and other workers. They had it before them in a way unmistakably demonstrated that the dreaded peritoneal cavity could be opened with impunity, the intestines and viscera sponged over, replaced, and uninterrupted recovery ensue; and with this fact before him, he would not think much about whether he reflected or cut the membrane. He could not realise how the operation of gastro-elytrotomy could be performed without a good deal of stretching of the peritoneum.

PROFESSOR DILL, in replying to the remarks, said that those who spoke on the subject of the peritoneum being injured, seemed to forget that in the Cæsarean section this membrane is twice cut through, and after this you come to the bleeding uterus. If it was a case of only going through one layer, he would hesitate before recommending any substitute; but it was different when he remembered that the layer over the uterus must be incised also. As regards the question of removal of the ovaries per vaginam, he would have discussed the question raised by one speaker, in his paper, only he thought that the title of his paper confined him to the points about the uterus. On the whole, he said, he must feel that the patient would have a better chance under these operations than in many cases after craniotomy, when the pelvis is very narrow; and gentlemen should remember that these operations were only suggested to meet cases where it was found impossible to extract the *fœtus per vias naturales*.

Case of Double Vagina and Os Uteri.

DR. DEMPSEY said: Mr. President and Gentlemen,—I was called at one o'clock on the morning of the 18th October, 1877, to attend Mrs. M. in her first confinement.

She had been ill from eight o'clock the previous night with sharp pains, but at long intervals. I examined her and found the os uteri to be dilated to the size of a sixpenny piece.

To ascertain its dilatability I examined her again during a pain, and this time with great difficulty I discovered the os, and was surprised to find it much less dilated than when I examined before.

It immediately occurred to me that there was some abnormality, and I then found there was a bridge of tissue stretching across the vagina, dividing it into two compartments—an anterior and a posterior. This septum was about one-eighth of an inch in thickness, soft and elastic in structure, and it extended from each labium minus backwards to the uterus. It did not pass straight across the vagina, its attachment on the left side being nearer the fourchette than on the right side. The anterior canal was therefore somewhat larger than the posterior. The os and cervix uteri in each canal had all the characters of normal development.

The head was presenting, and the liquor amnii had escaped. As the labour was likely to be tedious I left her, and returned about six o'clock.

The os at this time in the anterior canal was dilated to the size of a crown piece; in the posterior canal to the size of a half-crown piece. I could pass my finger through one os uteri over the septum into the other, so that the uterine cavity was not divided. The pains from this time were quick and strong, until about nine o'clock, when they came at longer intervals. At nine o'clock the anterior os was nearly fully dilated; the posterior remained as before—about the size of a half-crown.

At each pain the head of the child was pressed strongly against the bridge of tissue between the duplex os uteri, which completely obstructed its advance.

I endeavoured to keep it aside during the pains, but they came at such long intervals and were so weak, that no advance was made. At 11 o'clock a.m. there was an escape of meconium, and I then determined to deliver at once. I put on Simpson's long forceps, and made gentle traction with one hand during the pains, and with the other tried to push the obstructing septum over the child's head.

Just when I believed I had done so effectually, and that all trouble with it was past, and made stronger traction, there was immediate evidence of laceration, which continued with every pain until I brought the head down on the perinæum.

The child was apparently dead, but after some efforts it began to breathe regularly and lived.

The placenta was expelled about fifteen minutes afterwards. There was not much hæmorrhage immediately after confinement, but during the day and throughout the night there was a great deal of a trickling kind, which ceased altogether the following morning—viz., October 19th. A sharp attack of metritis now set in, with high fever and quick pulse. The pulse reached 140 in the minute on the third day after confinement. There was intense tenderness over the uterus, which felt very large, and altogether she was in an alarming state for a few days.

Under treatment of the prescribed kind she recovered, and was able to be up on the 13th day after confinement.

I have never since had an opportunity of examining her, so cannot tell the extent of the laceration, but, from the noise of the rent, I believe it must have been extensive and implicated the cervix of the uterus (at least the part between the ora uteri), as well as the septum. As malformations of this kind are rare, I thought it would be interesting to read the notes of this case to the Society. During a term of four years I find only one such case recorded in *The British Medical Journal*, and that by Dr. Murray, of Durham College, but in his case the uterus was also divided. To understand how this abnormality took place, we must look to the usual mode of development of these parts in the fœtus.

The vagina, the cervix of the uterus, and the lower part of body of the uterus are developed from the *genital cord*—the genital cord itself being formed by the union below of the two Mullerian ducts. From these ducts above the genital cord are developed the upper part of the uterus and the Fallopian tubes.

In this case the lower portions of the tubes of Muller did not unite into one single tube, but remained as two distinct canals, and the result was a double vagina, os, and cervix uteri. The development of the rest of the uterus had gone on in the usual way, and there was only a single cavity. I may state Mrs. M. was not aware there was anything unusual in her development.

Specimen of Diseased Lungs.

DR. WHITLA gave the following notes of a case:—A. G., aged eight and a-half years, an active, healthy girl, had been in her usual health and spirits on the evening of the 4th instant at 7.15 p.m., when she was thoroughly enjoying herself at play. She suddenly complained of a pain in her right side in the mammary region, which was soon observed to interfere with her breathing, and, continuing in severity, she was put to bed, when some shivering was noticed. I was called to see her at 2 a.m., seven hours after the onset. She was suffering intense pain, respirations were very frequent, shallow, and irregular. Any effort at coughing caused great agony. Pulse frequent and weak, and difficult to count: temperature in axilla, 102.8°. Owing to the great dyspnoea it was

difficult to get a thorough examination. On inspection there was seen to be diminished movement on the right side; on auscultation the sounds on this side were distinctly fainter. The signs thus pointed to pleuritis, but I was informed that she had coughed up some little blood expectoration. This settled the diagnosis as pleuro-pneumonia of the right lung. There was no crepitus or evidence of solidification. I gave her 1 grain of opium instantly, and an expectorant, with carbonate of ammonia, &c., and 5 minims of tinct. opii camph. every hour, and applied hot sinapisms. At 10 a.m. she was worse; no material change, but respirations more laboured, lips getting blue, mucous râles over both sides of the chest. The alarming rapidity of the symptoms seemingly increasing every minute in intensity warned me that there was no time to lose. I put on eight leeches and cupped over them, extracting about 5 oz. of blood, with decided, but only very temporary, benefit. Dulness now appeared over the right base, changing with position, and the dyspnoea increased, the lips getting blue and cold, and she sank at 5, 21 $\frac{1}{4}$ hours from the time she had been noticed at play in health and glee.

He brought the case before them with the result of the *post mortem* examination, solely on account of the terribly short duration of the disease. She was conscious up to the moment of death.

On opening the chest about 6 oz. of bloody serum escaped from the right pleural cavity. The base of the lung was partially solid, as they would see. The pleural membrane was deeply injected, at patches showing small ecchymoses or miniature extravasations; it had lost its polish, and a thin filmy structure could here and there be scraped off it, like a very fine elastic membrane, evidently lymphic; but no shreds of ordinary white lymph were to be seen anywhere. The left lung, as would be seen, was also partially solidified at its apex, and both lungs were decidedly congested throughout. The heart was normal, and contained no clot.

DR. FAGAN said the question of abstraction of blood from children was a very disputed one. For his part he found that they bore it well.

DR. DEMPSEY said he had not seen much acute pneumonia in children so young. He believed in the extraction of blood to a moderate extent, and would extract it by leeches or cupping. He would give antimony, but would hardly give so free a dose of opium.

DR. JOHNSTON had seen much acute pneumonia in children, and they generally did well. He could hardly see from the viscera shown that the cause of the death was in the lungs.

The SECRETARY then cut the lungs exhibited, and placed portions of them in water, when it was found that portions from every part of the right lung sank, and also from the base of left.

DR. WALES, in thanking Dr. Whitla for the specimens, said that the

case was one of great interest; it was so also from its extraordinary rapidity. The amount of the disease in the viscera exhibited was astonishing, especially as the case pointed to 21 hours' duration. His experience was altogether in favour of depletion, and was uniformly successful, especially in the first stage. Opium must be given to allay pain, and he believed it might be pushed till pain was subdued. The opium in this case had clearly no effect, though the dose was fair, but the disease was very extensive. If he had a similar case he would adopt the same treatment as had been used in this, but he thought he might likely have bled a little earlier, if he got an opportunity.

BRAINS OF CYCLOPIANS.

PROFESSOR CLELAND, in the July number of *The Journal of Anatomy and Physiology*, gives an account of his examination of several cyclopiian brains. One was from a nine-months' human fœtus in the Montgomery Collection (now in the Queen's College, Galway), and the others from two pigs, a lamb, and a dog, in the Hunterian Museum of the University of Glasgow. He considers that the development of the eye in the cyclopiian does not depend upon the degree of development of the optic nerves and optic tract; that there is no trace of a retina; and that the eyeball consists only of those elements which owe their development to the superficial structures. He notes, as an interesting physiological fact, that the corpora quadrigemina are normally developed in cyclopiians. While fully admitting Förster's statement, that the defect of the cyclopiian brain is an arrest of development of the first cerebral vesicle, he cannot regard this as the cause of the facial defect, but is forced to look for a common cause. As a possible solution of the question, he suggests that the blood-vessel which, in the early embryo, is seen ascending in the groove between the first and second cerebral vesicles, may become thickened, owing to some deranged action within it, and thus cause a constriction which would interrupt the growth of all structures in front of it. Referring to the primitive condition of the transverse fissure of the brain as a fissure extending across the middle line at the upper margin of the necks of the hemisphere-vesicles, he remarks that the parts in front of this fissure in cyclopiians make one small mesial structure, which he regards as mesial from an original want of separation and not from subsequent reunion. The parts behind this fissure likewise exhibit a difficulty in diverging from the middle line, and hence the union of the optic thalami and a prolongation of the aqueduct of Sylvius observed in each of the lower animals examined. The third ventricle, in every case distended into a membranous vesicle, he would term a dropsy of the pineal body. This he believes to be the most constant condition in the brains of cyclopiians.

R. J. H.

TRANSACTIONS OF THE CORK MEDICO-CHIRURGICAL
SOCIETY.

SESSION 1877-8.

President—DR. O'KEEFE.

Secretary—DR. D. C. O'CONNOR, Jun.

A Case of Intestinal Obstruction, terminating fatally, produced by the Strangulation of the Gut within a loop of the Omentum. By RINGROSE ATKINS, M.A., M.D. Communicated by D. F. BARRY, M.D.

THE particulars of the following case are of interest, from the clinical point of view, as showing a definite and irremediable cause for an ailment which defied all means of treatment, and from the pathological, or rather physiological, standpoint, as presenting, in the specimen now before the Society, an example of a rare malformation of certain parts within the abdominal cavity, which might under a slight exciting cause have terminated life at any period of the patient's existence, but which remained without coming into operation for some forty-six years—finally, however, bringing about a fatal result:—

Elizabeth Hogan, aged about forty-six years, unmarried, had been a patient since girlhood in the Cork District Lunatic Asylum, suffering from incurable insanity—the form of her mental derangement being a quiet dementia without any apparent delusions or hallucinations. During the period of my service at the asylum she never suffered from any physical disease of the bodily organs, nor complained, so far as I am aware, of any intestinal trouble. On the evening of January 19, 1878, she was reported to me as suffering from “obstruction of the bowels.” On examination, the abdomen was found to be tense and distended; there was, however, no fever or other sign of constitutional disturbance. As no reply could be elicited in answer to any question, it was impossible to learn whether she suffered from pain or other sensation, though from the facial expression and uneasy movements it was more than probable that she did. I was unable to ascertain accurately when she had had a motion from the bowels, but the attendants in charge stated that she was very “regular” in that way. Turpentine stupes were applied, and an enema was administered, which, however, was not retained, and passed away without any effect. She was ordered tinct. opii in 3ss. doses every four hours. On the following day she had a slight attack of vomiting, and took but

little food, but did not *appear* ill; her features were natural, and she did not seem to suffer pain. The opium was continued and poultices applied, and the enema repeated, the long tube being passed without any difficulty to the full extent, but again the fluid was immediately rejected without bringing any fæcal matter with it. Not a word as to her sensations could be drawn from the patient. On the 24th a quantity of brightly-coloured blood was passed, but as the woman was found to be menstruating at this time it was difficult to ascertain whether it all came from the vagina or portion from the rectum. However, the hæmorrhage continuing for some days, it was definitely ascertained that it was passed *per anum*. The abdomen now became more and more swollen, and as tense as a board, and the features assumed a haggard and drawn expression. An enema of one pint of cold water with 3i. of dilute sulphuric acid was given with the long tube, but, as before, was immediately ejected, the patient in spite of all endeavours forcing against it. Sulphate of magnesia with acid infusion of roses was then tried, but as quickly rejected by the stomach. Six grains of calomel placed on the tongue produced no result, and the terebinthinate enemata, which were persisted in twice daily, never were retained—the tincture of opium being still continued in 3ss. doses. This state of things continued until January 30, no fæcal matter having been passed, blood in small quantities from time to time coming away. The abdominal distension gradually increased, the woman becoming weaker and sinking until the latter date, when she died quietly. There had never been any febrile condition or increase in the pulse, or any further sign of grave constitutional mischief.

A *post mortem* examination was made on February 1. The abdomen was found enormously distended; on puncturing the parietes, the flatus escaped with a hissing, almost whistling, sound, and had a most fetid odour. The distension then entirely disappeared, showing that the peritoneal cavity contained the gases in largest quantity, which had passed by exosmosis through the intestinal walls owing to their over-distension. On reflecting the abdominal muscles, there were no indications of peritoneal inflammation, the membrane being clear and free from adhesions, or any lymph or purulent deposits. The large intestine throughout was enormously distended, more especially the descending colon, which just above the sigmoid flexure was puffed out bladder-like and black from congestion—this almost amounting to a gangrenous condition; it contained masses of fæces. On carefully raising and turning up the colon, the following condition of the parts at the brim of the pelvis was observed:—A rounded cord-like band of the omentum (which was not spread apron-like over the surface of the abdominal contents) was found to pass obliquely downwards from the right hypochondrium behind the small intestines, and then to curve over the rectum, as it lay crossing the promontory of the sacrum; this then passed beneath the

gut, encircling the latter completely in a regular noose, which also included in its embrace a coil of small intestine which lay alongside the rectum in this situation. After forming this loop the band then crossed obliquely upwards to the left side, and was inserted in the parietal walls in the left hypochondrium. On taking hold of either end of this band and making gentle traction, the coils of intestine included within the loop became immediately strangled, and thus the cause of the obstinate obstruction was at once disclosed—it then being clear that some partial interference with the passage by a hardened mass of fæces or other substance gave rise to flatulent distension of the gut above, which, causing in turn a drag on the above-mentioned band, led to the tightening of the noose, and finally to the complete strangulation of the included intestine, and the consequent permanent obstruction. Careful examination of the specimen will render this condition of things more intelligible than any written description could. The liver was large, soft, and easily broken down by the finger. The gall-bladder was full to distension with an aggregation of small gall-stones, glued together with viscid bile; another small and more compact mass occupied and caused a dilatation midway in the cystic duct. The kidneys were healthy.

Remarks.—Obstruction of the intestinal canal, brought about by mechanical means, is of infrequent occurrence, the most common form being that due to intussusception or invagination of one portion of the intestine within another, which is chiefly seen to occur in young children. Occlusion due to bands or adhesions, the result of recent or old abdominal inflammations, come next, such being almost invariably found somewhere in the course of the small intestine. Morbid growths, either exterior to, or within the canal, contribute a certain proportion of cases, these generally occurring in the large intestine, while a congenital malformation such as that now under consideration must certainly be looked upon as the rarest of lesions of this nature. Indeed, it is a question whether this state of things should be looked upon as pathological at all in the first instance, as if no factor causing distension of the bowel above came into operation, such a band might never cause any trouble and exist unknown during the normal period of life. It is only when another factor comes into play that it becomes a pathological entity in the production of disease and death; and it is doubtful whether, even by the most careful use of the process of exclusion, the exact diagnosis of such a condition—requiring, of course, surgical aid for its alleviation—could ever be correctly diagnosed.—*March 23, 1878.*

CLINICAL RECORDS.

Selected Clinical Reports. By ROBERT SAMUELS ARCHER, A.B., M.B.,
Univ. Dubl.

I.—SCROFULOSIS—VESICAL CALCULUS—DEGENERATION OF KIDNEYS—
ENLARGEMENT OF LIVER.

II.—SCROFULOUS TUMOUR OF CEREBRUM.

III.—ATHEROMATOUS DEGENERATION OF AORTA—HEMORRHAGE INTO THE
PERICARDIUM THROUGH A SMALL OPENING.

IV.—SENILE PHTHISIS—CRETACEOUS DEPOSITS IN THE LUNGS.

THE following cases, selected and condensed from my notes, present some features of interest. My remarks are merely intended to bring forward some of the points which struck me as being of practical importance in connexion with each case, and chiefly refer to pathology. The pathological specimens from Cases I. and II. were exhibited at meetings of the Liverpool Medical Institution :—

CASE I.—Scrofulosis ; Vesical Calculus ; Degeneration of Kidneys, &c. : Enlargement of Liver.—A scrofulous, emaciated, anæmic-looking boy of five years of age came under my observation in West Derby Union Hospital, on July 4th, 1877. He was suffering from incontinence of urine. There was general bronchitis. He vomited his food. He was very small and puny of his age, and his abdomen was very much enlarged; this was especially manifest in the epigastric region, where a tumour could readily be mapped out, stretching from under the ribs on the right side to those on the left, and reaching down to a level with the umbilicus. There was no evidence of ascites. On one occasion I detected a small tumour in the right side of the hypogastric region, but it had vanished the next time I looked for it. There was some bleeding from the gums. The little fellow gradually became weaker, and sank about midnight on July 13th. As is very common with the class of patients we have to deal with in a workhouse hospital, I could ascertain nothing whatever concerning the previous history of this case.

Necropsy.—Dead about thirty-six hours. Rigor mortis absent. *Thorax:* The lungs exhibited traces of bronchitis, but were otherwise healthy. There was slight congestion of the bases. Some of the bronchial glands were enlarged and cheesy. *Abdominal and pelvic cavities:* The entire upper portion of the abdomen was occupied by a much-enlarged liver. This viscus completely concealed the stomach and greater portion of the

intestines from view. Its right, inferior, and superior borders and under-surface adhered closely to the adjoining viscera and parietes—viz., to the right kidney, to the duodenum and portion of the small intestines, to the columns of the diaphragm, and to the lumbar fascia. The gall-bladder was distended with bile. The liver weighed 29 ounces; its surface was smooth, hard, and firm to the touch, and here and there on its upper aspect were scattered faint yellowish mottlings, with very slight—almost imperceptible—depressions. On section it was firm, hardish, and of a paler colour than normal. *Kidneys*: The left was fully as large as an adult one; its ureter was much dilated and (in the recent state) tortuous. There was a cavity in the gland, formed at the expense of the medullary substance, which was filled with ammoniacal urine. The cortical layer was decidedly thicker than it ought to be, and its section was mottled in various places with yellowish fibroid markings. Its surface was irregular and lobulated, and the capsule in places much thickened, but everywhere easily separable from the glandular substance. The right kidney was reduced to a cyst, apparently of fibrous tissue, and hardly any gland tissue remained. This cyst, composed of the attenuated and degenerated gland with its pelvis, as well as the corresponding ureter, was filled with pus. The ureter was not so long as its fellow on the left side, but was more dilated. The pelvis of this organ contained small portions of gritty material. The bladder was somewhat enlarged and its coats very decidedly thickened and hypertrophied—the muscular layer particularly so. In the recent state the mucous lining was congested, thickened, thrown into wrinkles, and covered with glairy, viscid secretion. It contained a calculus weighing 226 grains, and which appeared to me to be composed (as far as its exterior was concerned) of uric acid, with a coating here and there of phosphates. A small projection from one extremity of this stone fitted into the neck of the bladder, but was not fixed there, as, before opening the viscus, it could readily be moved up to the fundus. The bladder contained a quantity of muco-purulent ammoniacal urine. There was a chain of enlarged cheesy glands extending all down the spine. The mesenteric glands were in a state of cheesy degeneration.

This case illustrates very well the changes which are capable of being induced in the renal apparatus of a strumous child by the existence of a vesical calculus. What part the scrofulous diathesis played, as predisposing to, and accelerating, these changes, I am not prepared accurately to state, but I should fancy a not inconsiderable one. Judging from the advanced stage of degenerative changes manifest in the right kidney, this was evidently the organ which was first affected. The calculus first began to be developed, I think, in the pelvis of this kidney, and, after attaining a certain size and kindling suppurative inflammation, which eventually destroyed the glandular substance, it traversed the ureter into the bladder, there to grow to the dimensions it attained at the time of

death. The size of the left kidney was owing to compensatory hypertrophy, and the cavity found in its medullary substance was the commencement of a cyst analogous to that of the right, which probably would have gone on increasing till almost all the parenchymatous tissue had been destroyed, had it been possible for the patient to live longer. There would appear to be just this difference in the time that the kidneys began to be each affected:—The changes in the right commenced, and probably had advanced to a considerable degree, before the calculus had left its pelvis; those in the left did not begin (except so far as the hypertrophy was concerned) till after the stone had reached the bladder and the inflammatory process extended up the ureter. Thus the order of events might be described as primary in right kidney, secondary or intermediate in the bladder, and tertiary in the left kidney.

Had the true condition of affairs been recognised in the first instance, lithotomy would probably have saved, or at least prolonged, this child's life. But when the patient came under my care, the disease had advanced to a stage in which such interference could have been of no possible service—if, indeed, it would not have been positively culpable, as the child was evidently in a sinking condition. The small tumour which was discovered on one occasion in the hypogastrium, but which had vanished the next time it was sought, was the stone, which had moved up from its usual resting-place at the neck of the bladder to the anterior part of the fundus. Thus it will be perceived that under certain conditions it is possible to detect a vesical calculus by external examination. These conditions would appear to be:—(1) A large stone; (2) free mobility of the stone; (3) a thin and attenuated condition of the abdominal wall; (4) a certain amount of urine in the bladder; (5) the stone must be fixed (temporarily or permanently) in the anterior part of the fundus. However, this method of diagnosis cannot be of much importance, even if it were more generally applicable, since we possess such a simple instrument as the sound, which recently has been rendered so very sensitive as to detect calculi of the smallest size by means of the microphone—an instrument whose future services in the domains of practical medicine and surgery it is not for me to predict.

CASE II.—*Scrofulous tumour of Cerebrum*.—A wasted, anæmic girl, about eleven years of age, was under treatment in hospital for nearly two years, suffering from chronic disease of one hip-joint. She occasionally complained of headache, which at times appeared to be intense. The first undoubted symptoms of brain disease showed themselves on May 11th, 1877, when she had an attack of general epileptoid convulsions, followed by coma, out of which she gradually but incompletely emerged, not regaining her intelligence as before. About four weeks after the first attack of convulsions she had a second one, much more violent than the former; she remained for a longer period in a state of coma, eventually

awakening into a condition of stupidity and imbecility, never again to regain even a trace of intelligence. The faculty of cerebration was completely annihilated. She eat voraciously when food was put to her mouth, but made not the faintest effort to feed or assist herself in any way. She stared vacantly about the ward, not taking notice of, nor apparently perceiving, anything. After remaining in this condition of automatic existence for about a week—a truly pitiable object to behold—she gradually sank, and died exhausted, no new symptom manifesting itself. I may add that at no time did we observe paralysis of any muscle or group of muscles, nor localised spasmodic action of any particular muscle.

Necropsy.—I made a *post mortem* examination about twenty hours after death, only opening the skull. On removing the calvarium and dura mater, I observed on the superior and anterior surface of the left cerebral hemisphere, implicating portions of the superior and middle frontal convolutions, a rough, yellowish-looking area. The general surface of the brain appeared otherwise fairly healthy. There was no excessive distension of the superficial vessels, but some of the veins, especially those in the neighbourhood of the great longitudinal fissure, contained large, firm, pale, worm-like clots. The brain substance generally was softer than normal, and was markedly anæmic. The yellowish, rough area noticed above was found to be the superficial portion of a tumour which lay embedded in the substance of the hemisphere. This tumour was hardish, nodular, and rather friable, and appeared to consist of a number of small nodules, one of which was situated at a short distance from the general mass. The surrounding brain-tissue, for a considerable distance, was exceedingly soft and diffuent, a gentle stream of water washing it away. There was no trace of recent inflammatory action in or around the tumour. The dura mater adhered to the tumour where it made its appearance at the surface of the hemisphere.

According to the researches of Ferrier on the functions of the brain, one would have expected to have found in this case various phenomena which he has shown to follow irritation or destruction of the superior and middle frontal convolutions of monkeys. In these convolutions this observer localises the centres for (1) opening widely the eyes, (2) for dilatation of the pupils, (3) for torsion of the head towards the opposite side, and (4) for extension of the opposite arm and hand. In the first or irritative stage of the growth, spasmodic manifestation of these various actions might fairly have been expected to exist; in the second, or destructive stage, paralysis. However, in this case none whatever of these phenomena were found at any time to exist. So, it would appear, as I have always thought, that in every case we cannot compare the effects of experimental comparative physiology with those which result from gradual pathological changes going on in the human brain. That this should be so in many instances appears quite clear to me, for in

experimental physiology we have a sudden irritative or destructive process acting on a healthy brain. On the other hand, in pathological changes, we have a gradual, almost imperceptible, transformation going on in the organ, whereby, I suppose, it becomes accustomed, so to speak, to the altered condition of affairs; and I think it not improbable that neighbouring parts take on, as it were, a vicarious action, replacing to a certain extent, more or less, the functions of the destroyed part.

There can be no doubt as to the scrofulous nature of the tumour. It is that form of growth to which Wagner has given the name of "large tubercle or conglomerate nodules," one of the favourite seats of which is the brain—especially in children. Rindfleisch calls this form of cerebral tumour "solitary tubercle" of the brain, and says it "must be regarded as a product of the neuroglia cerebri." He describes it as consisting of "yellowish-white, extremely tough and dry nodules," whose "favourite seat is in the cortical substance of the cerebrum and cerebellum, where they are developed close upon the cortico-medullary boundary." "Cheesy knots of the brain, or tuberculous encephalitis, arise," according to Buhl, "through increase of the endo- and peri-thelial cells of the arterial vascular sheaths, embryonic new-formation of connective tissue, and softening of the interjacent brain-tissue, with consecutive capillary anæmia and necrosis."

The pathological changes in the present case agree, both as regards the tumour itself and the condition of the brain-tissue, with these descriptions given by Wagner, Rindfleisch, Buhl, and by other morbid histologists.

CASE III.—Atheromatous degeneration of Aorta; Hæmorrhage into the Pericardium through a small opening.—About 5 p.m., on October 30th, 1877, I was asked by Dr. Lupton to see with him a man, aged twenty-six years, who, about 9.30 a.m., whilst in the act of whitewashing, suddenly fell down as in a swoon. He was in a state of collapse, cold extremities, almost pulseless, lying on the floor of a harness-room. I could feel no cardiac impulse whatever, nor could I hear the faintest trace of the heart's sound on applying the stethoscope to the pericardium. He seemed to understand what was said to him. Pupils slightly dilated. There had been vomiting, more less constant, since the accident. He swallowed easily, and seemed to like his lips to be wet. His limbs were flaccid, but there was no evidence of paralysis. He died about 9.15 p.m. the same day.

Necropsy.—With Dr. Lupton's assistance I made a *post mortem* examination, about fourteen hours after death. Rigor mortis well marked. Face and depending parts of body of a livid colour. Body muscular and well developed. About one and a-half inches of subcutaneous fat. On opening the chest, the pericardium was seen to be greatly distended, pushing the lungs quite aside. When the pericardium was incised a large

quantity of dark fluid blood and large clots escaped. This blood was found to have made its way into the pericardial sac through a very minute slit, which was discovered with much difficulty, after a long and careful search, in that part of the aorta where this vessel abuts on the pulmonary artery. This slit communicated with an aneurismal cavity about the size of a hazel-nut, and was situated about $1\frac{1}{2}$ inches above the line of the semilunar valves. The walls of this cavity were very thin, and the opening into it from the aorta was surrounded by a ring of indurated tissue. The aorta showed manifest signs of atheromatous deposit. The aortic valves were thickened. The left auriculo-ventricular opening was dilated, readily admitting the tips of three fingers, and was surrounded by a rigid cartilaginous ring. The muscular tissue of the heart was soft, flabby, and pale-coloured.

On first seeing this patient, before the history or other circumstances connected with the case were inquired into, one was rather inclined to look upon it as a case of intracranial hæmorrhage. The state of apparent coma and the relaxed condition of the extremities, simulating paralytic relaxation, at first seemed to favour this view. However, on further investigation we were taught that, to say the least, it is not a judicious proceeding to "jump at" too hasty a conclusion, as it became evident that the symptoms were due to a hæmorrhage indeed, but to one into some cavity other than the cranial, and the diagnosis of an aneurism gradually discharging its contents through a small opening was arrived at, but I am ashamed to add that the actual source of this bleeding was not determined, which it might easily have been had we "kept our wits about us," and been more careful in our examination. However, the great prostration of the patient prevented us from disturbing him unnecessarily. In examining the cardiac region during life we neglected (I am bound to say, carelessly) to "map out" the area of cardiac dullness by percussion. If we had only done this, we would in all probability have arrived at a correct conclusion with respect to the source of the hæmorrhage and into what cavity the blood was gradually being poured. The fact of the patient living for close on twelve hours after the time of the rupture proves that the blood must have trickled away gradually, as, if there had been a sudden gush, the pericardium would have become rapidly filled, and death ensued almost instantaneously, not from loss of blood, but from mechanical stoppage of the heart's action.

CASE IV.—*Senile Phthisis; Cretaceous deposits in the Lungs.*—Edward J., aged about fifty-four years, was admitted to West Derby Union Hospital on August 10th, 1877. He presented symptoms of senile phthisis (?) and bronchitis. There was a certain amount of emaciation, difficulty of breathing, with troublesome, short, hacking cough, and very scanty frothy expectoration. On examining the chest, the right side was found to be almost entirely dull on percussion. There was dullness at left apex; at

other parts of this side the percussion note was fairly good, as compared with the opposite side. Tubular breathing and bronchial râles were more or less generally audible over the entire chest. Heart's action normal. He continued in much the same condition without any appreciable change in his symptoms—the dyspœna being one day better the next worse—till the morning of November 13th, when he was suddenly attacked with a moderate hæmorrhage from his lungs, the first he had since admission, and died almost immediately.

Necropsy.—Dead about eight hours. Body much emaciated. Rigor mortis not well developed. *Lungs:* The pleura, both visceral and parietal, on the right side was much thickened. There were universal and very firm adhesions requiring great force to separate before the lung could be raised from its bed. These adhesions were particularly resisting and firm at the apex, and on the diaphragmatic surface. The right lung was dark and congested; dark-coloured bloody serum oozed out on section. The pulmonary tissue was much disorganised, and studded all over with hard, gritty, cretaceous masses, varying in size from a pin's head to a damson stone. Some of these masses were very much like dry mortar. They became more numerous as the apex of the lung was approached. There was no vomica whatever in this lung. The left lung was tied down by adhesions here and there, and also contained, scattered through its substance, cretaceous masses, similar to those in the right, but not to the same extent. The apex of this lung, as of the right, contained more of this mortar-like substance than other parts. A portion of the infero-anterior border was emphysematous. There was a small cavity near the apex. There was a small quantity of fluid in the left pleural cavity. Both lungs, with the heart attached, floated. *Heart:* There was a line of sharp bony spicula running along the insertion of the semilunar valves of the aorta. The curtains of the mitral valve contained some bone-like plates. There was a small quantity of fluid in the pericardium. The trachea and bronchi were filled with frothy blood and mucus. The liver was rather pale and slightly mottled.

The case just related is an example of a tolerably rare form of disease, and the actual pathology and etiology of it are not quite clear. Whether the concretions were a true calcareous degeneration of the parenchyma of the lung, a calcification of cheesy nodules, or a cretification of plugs of inspissated mucus in the terminations of the bronchi and the alveoli of the pulmonary tissue, I am not in a position to answer. The theory of a true calcareous degeneration of the parenchyma would seem to be supported by the fact of bony plates being discovered in the left side of the heart; then, again, the greater prevalence of the deposit at the apices, and the existence of a small vomica at the apex of the left lung, would seem to indicate that the change depended on a calcification of cheesy nodules, as such nodules are more frequently found at the apices, and more numerous

usually here than elsewhere. Generally, at some period of the history of these cases, small masses of cretaceous matter have been expectorated, and the sputa is, when such is the case, of a purulent character. In our case, however, the expectoration was always (whilst the patient was under observation) very scanty and frothy, and never assumed a purulent character, and cretaceous matter was never observed to be expectorated. The most urgent symptoms throughout were dyspnoea and a "tightness across the chest." The greater degree of dulness on the right side as compared with the left was mainly due to the much-thickened pleura.

Rindfleisch,* in treating of catarrhal pneumonia, mentions, as a result of this affection, that the retained and stagnant muco-purulent secretion, after becoming inspissated, *may* undergo "calcareous impregnation" by the deposit of cholesterin and earthy salts, commencing in the centre of the plug, and accompanied by a similar degeneration of the pneumonic foci which surround the obstructed tubes. Usually in these cases the bronchial secretion becomes decomposed, and the calcified nodules are frequently expectorated with a profuse puriform discharge.

This writer,^b without denying the possibility of bronchial calculi existing *per se*, considers that it is the pulmonary lobules themselves that become calcified, and are occasionally expectorated in cases of phthisis calcuosa. Speaking of "pulmonary concretions," he says,^c "It is only when the cheesy nodules are small, that any further metamorphosis, especially softening, is absolutely prevented by an abundant deposit of calcic phosphate and carbonate—by a process of real petrification. It is in this way that pulmonary concretions (*calculi pulmonales*) originate; hard bodies from the size of a split pea downwards, with their surface either smooth or beautifully lobulated like a mulberry. There are persons who suffer from frequent attacks of bronchial catarrh, and who now and then bring up a considerable number of these pulmonary concretions; their expulsion being attended by an exacerbation of febrile symptoms. It is obvious that the expulsion of these calculi can only be due to a sequestering suppuration which they, as foreign bodies, excite around them. Another necessary condition for their removal is the simultaneous perforation of a bronchus of adequate size; for microscopical investigation affords conclusive proof that the concretion voided in *phthisis calcuosa* are cheesy lobules of pulmonary tissue, impregnated with calcareous matter. The elastic tissue, as well as black pigment, are not in any way altered by the calcification; so that by macerating the concretion in hydrochloric acid, we are always able to restore the entire framework of several infundibula, together with their alveoli. Bronchial calculi are far less common; they are invariably smooth,

* Pathological Histology. Vol. II. New Sydenham Society. 1873.

^b Loc. Cit. Note p. 19.

^c Loc. Cit. P. 37.

globular, or elliptical, and occur singly or in groups in bronchiectatic cavities. Finally, we sometimes meet with encapsuled concretions disseminated throughout the lungs, in which case we infer that the irritation they set up, though sufficient to cause a chronic overgrowth of the connective tissue, immediately around them, was not intense enough to give rise to suppuration."

This latter occurred, doubtless, in our case, as many of the larger nodules had a distinct capsule, which was readily peeled off; and, as stated above, there was never a puriform or profuse expectoration; so that, as Rindfleisch remarks, the irritative action from some cause or another was not sufficient to kindle suppuration.

Wagner^a thus describes these concretions:—"The so-called lung-stones are most often inspissated or calcified secretion of the smaller bronchi; more rarely is it the smallest lobules of the lungs, which, after that they have been affected by catarrhal pneumonia, and are calcified, pass outwards by a sequestering suppuration of the surrounding connective tissue, so called phthisis calculosa."

It will be observed that this writer differs from Rindfleisch in regarding the concretions as being formed by the cretification of plugs of inspissated mucus, more frequently than by the impregnation of cheesy nodules by calcareous salts. I must say, I think Rindfleisch's explanation of the process is the more clear and satisfactory one. The late Dr. Stokes^b observed several cases of this affection, accompanied by hectic, profuse, purulent expectoration, and, as in our case, a certain amount of dulness, but *no* signs of excavation.

At the meeting of the Imperial Royal Medical Society of Vienna, on October 19th, 1877, Chiari communicated an interesting case of this form of disease, an abstract of which will be found in the *London Medical Record*, December, 1877.

I would remark that, in the case I have related, cretaceous deposits in the lungs were not diagnosed, but it was regarded as a case of senile phthisis, with deposits scattered through the pulmonary tissue. Death appears to have resulted from asphyxia, the immediate cause of which was a moderate hæmorrhage into lungs already greatly embarrassed in performing respiration.

^a *Manual of General Pathology.* P. 320. 1876.

^b *Diseases of the Chest.* P. 456. 1837.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, M.D., F.K.Q.C.P.

VITAL STATISTICS

Of Eight Large Towns in Ireland, for Four Weeks ending Saturday, October 5, 1878.

Towns	Population in 1871	Births Registered	Deaths Registered	DEATHS FROM ZYMOTIC DISEASES								Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea		
Dublin, -	314,666	807	616	31	—	14	1	23	30	70	25·5	
Belfast, -	182,082	571	376	1	—	22	—	9	9	39	27·0	
Cork, -	91,965	200	138	—	2	—	—	5	5	9	19·8	
Limerick, -	44,209	95	64	—	—	2	—	2	1	4	18·8	
Derry, -	30,884	54	36	1	—	2	—	—	1	2	15·0	
Waterford, -	30,626	89	65	—	—	—	—	2	3	2	27·5	
Galway, -	19,692	33	46	12	—	—	—	—	1	—	30·5	
Sligo, -	17,285	20	14	—	1	—	—	—	—	1	10·5	

Remarks.

In Galway, Waterford, Belfast, and Dublin the death-rate was high. In the other towns it was low. The mortality equalled 19·1 per 1,000 of the population annually in London, 17·7 in Edinburgh, 19·7 in Glasgow, and 26·5 within the municipal boundary of Dublin. Omitting the deaths of persons admitted into public institutions from localities outside the district, the mortality in the Dublin registration district was 24·8 per 1,000. Zymotic diseases proved fatal in 187 instances, compared with a ten-years' average of 148·2 in the corresponding period of the year. Small-pox and diarrhoea were somewhat less fatal than in the preceding four weeks; but scarlatina, whooping-cough, and fever showed a decided increase. The deaths from whooping-cough were 23, against 13 (not 1, as printed erroneously in the Table at page 348) in the previous four weeks. The deaths from fever were distributed as follows:—Typhus, 6; enteric, 22; continued fever of undetermined type, 2. At the end of the period there were 75 small-pox patients under treatment in the Dublin hospitals. In Belfast scarlatina and diarrhoea were very fatal;

while in Galway no fewer than 12 out of a total of 46 deaths were attributed to small-pox. A death from this disease was also registered in both Belfast and Derry. Only 17 deaths from small-pox occurred in London during the four weeks. In Dublin respiratory affections caused 76 deaths, including 49 from bronchitis and 15 from pneumonia. The average numbers in the corresponding period of the previous ten years were—respiratory diseases generally, 58·4 deaths; bronchitis, 39·4 deaths; and pneumonia, 10·1 deaths.

METEOROLOGY.

*Abstract of Observations made at Dublin, Lat. 53° 20' N., Long. 6° 15' W.,
for the Month of September, 1878.*

Mean Height of Barometer,	-	-	-	29·957 inches.
Maximal Height of Barometer (on 12th at 9 p.m.),	-	-	-	30·283 „
Minimal Height of Barometer (on 15th at 2 p.m.),	-	-	-	29·270 „
Mean Dry-bulb Temperature,	-	-	-	56·1°
Mean Wet-bulb Temperature,	-	-	-	53·7°
Mean Dew-point Temperature,	-	-	-	51·4°
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·381 inch.
Mean Humidity,	-	-	-	84·5 per cent.
Highest Temperature in Shade (on 11th),	-	-	-	67·7°
Lowest Temperature in Shade (on 21st),	-	-	-	40·0°
Lowest Temperature on Grass (Radiation) (on 21st),	-	-	-	34·2°
Mean Amount of Cloud,	-	-	-	61·7 per cent.
Rainfall (on 16 days),	-	-	-	1·684 inches.
General Direction of Wind,	-	-	-	W., S.W., N.W.

Remarks.

The first portion of the month was unusually fine and pleasant—the weather being dry and summer-like, with generally light westerly winds. Barometrical conditions were anticyclonic over the southern part of the United Kingdom until the 14th, on the afternoon of which day a deep and very serious depression was advancing on the Irish and Scotch coasts from the Atlantic. Up to this time the rainfall for the month in Dublin did not amount to one-tenth of an inch. At 8 a.m. of Sunday, the 15th, the barometer stood at 28·80 inches in the Hebrides, while it read 30 inches or upwards over France. Strong S.W. gales sprang up at nearly all the British stations. Next morning the centre of the cyclone lay near the Shetland Isles, where the barometer was as low as 28·53 inches, or 1·7 inches below the reading at Biarritz (30·23 inches) at the same time. The gales continued to blow violently from W. or W.N.W. until Thursday, the 19th, and the air became keen and dry. In Dublin the relative humidity was only 67 per cent. at 9 a.m. of the 16th. A cold showery period now set in, lasting from the 18th to the 26th inclusive. The

lowest temperature of the month in Dublin was recorded on the night of the 20th, when—the air being dry, calm, and clear—the sheltered thermometer fell to 40° and the exposed thermometer almost to freezing point. On the night of the 23rd hoar-frosts occurred over central England. The last four days of the month were warmer. On the 29th a well-marked depression advanced over Ireland and England from the Atlantic, causing a heavy rainfall with thunder and lightning at many stations. In Dublin the wind veered from S.S.E. to N.W., with thunder, lightning, and heavy rain in the early morning hours of the 30th. Slight fogs were observed on the 4th, 5th, and 29th.

PERISCOPE.

Edited by G. F. DUFFEY, M.D., F.K.Q.C.P.

NERVE-TERMINATIONS IN THE EPITHELIUM OF THE CORNEA.

DITLEVSEN (*Nordiskt. med. Arkiv*, I., 1878) describes the nerves of the cornea of the duck as passing into the epithelium and ending in special cells, which are situated in the deepest layers of the epithelium. He obtains the best results by treating the cornea with weak sulphuric acid (1 per cent.), and subsequently hardening it in Müller's fluid. He has demonstrated the same structure—though not so readily—in the rabbit. By the gold-method he obtains an indication of this arrangement, but the special cells are not brought out at all so clearly by this reagent. He doubts—even denies—the existence of the fine ramifications of nerve-fibres in the layers of the epithelium, which are usually believed to be demonstrated by the gold-method. If they be nerves, it ought to be possible to isolate them (which he has failed to do), or to demonstrate them by some other method.

R. J. H.

PFLÜGER'S LAW OF CONTRACTION.

BARLOW, in the July number of *The Journal of Anatomy and Physiology*, publishes a short note on a mode of demonstrating Pflüger's law of contraction. He employs Marey's myograph, which he causes to move on a tramway-apparatus alongside the revolving cylinder, and takes the tracings in a superimposed manner upon the latter. He employs water as a medium of resistance in order to obtain a weak, constant current. A glass tube, filled with water, one inch in diameter and about twenty inches long, is interposed into the current generated by a Grove's element. Each end of the tube is closed by a cork perforated by a copper wire, the ends of which may be approximated or separated at pleasure. The circuit is completed by the water intervening between the extremities of the

copper wires. When this amounts to fifteen inches, a current, calculated to be $\frac{1}{7300}$ th part of the total current, is obtained, which gives results in accordance with Pflüger's results—viz., a contraction, with closing of a downward current, and with the closing of an upward current, but not with the opening of either. Barlow recommends that the observations with the weak current should be made before a medium or strong current has been used; for, if this rule be not observed, the results with the weak current will not be constant. This he believes to be due to molecular disturbance in the nerve produced by the stronger currents.

R. J. H.

ON THE PRESENCE OF VASOMOTOR CENTRES IN THE SPINAL CORD OF THE DOG.

FROM a series of investigations on this subject, Stricker comes to the following conclusions:—In the spinal cord of the dog there exist centres which govern the tonus of the vessels and consequently regulate the blood-pressure. The most important of these centres lie in the lower cervical and upper dorsal regions. The principal nerves which convey impulses from these centres are the splanchnics. These centres can, even after their separation from the medulla oblongata, maintain an arterial pressure of from 100 to 140 millimetres of mercury, provided the dog be not curarised. Curara greatly enfeebles these centres. If, then, section of the cervical medulla be practised in curarised dogs, there are two reasons for the considerable fall of blood-pressure which occurs. But the pressure which under these circumstances still persists, low as it is, depends for the most part on the spinal centres. Extirpation of the cervical and dorsal portions of the spinal cord causes, in adult animals, an immediate stoppage of the heart, in consequence of the complete paralysis of all the blood-vessels and stagnation of the blood in the peripheral portions of the circulation—chiefly the larger veins. In very young, curarised animals, however, even after complete extirpation of the spinal cord, the circulation may be maintained for some time. In non-curarised dogs, strychnine causes considerable fluctuations of blood-pressure, even after section of the cervical cord. The fluctuations are independent of the spasms of the skeletal muscles. In curarised, and still better in non-curarised, dogs, whose cervical cords have been divided, antiarine causes considerable fluctuations of blood-pressure, which become still better marked when the artificial respiration is suspended. The maximum pressure amounts to 240 millimetres of mercury. The action of antiarine is brought about through the agency of the spinal centres of the splanchnic nerves, which have been already noticed, and to a less extent through other nerves whose centres lie in the dorsal region of the cord. The peripheral nervo-vascular apparatus also appear to be directly affected by the poison, and to contribute to a slight extent to the rise of pressure. During the rise, rhythmic variations of

pressure are observed, similar to those which accompany the respiration of the animal; and since these variations occur after section or even extirpation of the upper part of the cervical medulla, they must be due to the action of the lower cervical and upper dorsal portions of the cord.—*Wiener medizinische Jahrbücher*, 1878, s. 21.

J. M. P.

ON THE CONTRACTILITY OF THE CAPILLARY BLOOD-VESSELS.

BY S. STRICKER.

YOUNG tadpoles are paralysed by being placed for five minutes in a solution of one part of curara in 200 of a mixture of equal parts of glycerine and water. The tail is then observed with high powers while a series of single induction shocks is passed through it. The capillary vessels, after a few shocks, contract so as to make the vessel impermeable to the blood. This contracted condition soon passes into one of relaxation, but, on renewal of the irritation, the vessels again become impermeable, and remain now contracted much longer than after the first irritation; and so in a third and in further experiments. These appearances, which are seen invariably in very young tadpoles, are only exceptionally observed in older animals. If, however, these older tadpoles are paralysed by being placed for a time in diluted alcohol—3 or 10 per cent.—the capillaries become not only irritable, and contract like those of young tadpoles when stimulated by induction currents, but they present spontaneous contractions and dilatations, which, however, do not follow any regular rhythm. These observations are important in a general histological point of view, as they show that under the influence of alcohol the older vessels can be again brought back to the condition in which they were at a much earlier period of their development. The author has, in his works on inflammation, adduced many examples of this return of adult cells, under the action of irritants, to the embryonal condition, in which they become mobile and are capable of multiplying by division. In the connective tissue corpuscles of the tail of the tadpole which has been poisoned by alcohol, changes are observed similar to those which are produced in the same part by mechanical irritation, such as a small section, and which resemble those seen in the cornea corpuscles or in those of the tongue in inflammation. Golubew and Tarchanoff have affirmed that the walls of the capillaries are composed of spindle-shaped cells, and that the narrowing of the lumen of the tube is due to the thickening and shortening of these elements, which bulge into the interior of the vessels. As regards the young tadpole, and those whose vessels are brought to the youthful condition by alcohol, Stricker cannot confirm this observation, but finds that the vessel contracts as a whole and that its narrowing is not due to the presence of special spindle-shaped contractile elements. As regards older animals, observed without special preparation, from the inconstancy of the results, he can

neither affirm nor deny the presence of contractile spindles. When the capillaries contract, the surrounding tissues accommodate themselves to the altered shape of the vessels, and no perivascular spaces are formed. As is known, the walls of inflamed capillary vessels are very permeable, and allow readily the red and white corpuscles to pass through by diapedesis. Not uncommonly the red corpuscles pass through, not one by one, but several together, so as to give rise to capillary hæmorrhages which are visible to the naked eye. In very young tadpoles, after slight injuries such hæmorrhages occur. From this a still further similarity is made evident between the condition of the vessels in an early stage of development and in inflammation. It is uncertain whether the contractility of the capillaries exerts any influence on the circulation similar to that exerted by the arterial contraction. The inconstancy with which contraction of the capillaries can be brought about by electric irritation in animals advanced in development is no proof that these vessels do not contract under ordinary circumstances, for there are grounds for supposing that mechanical and other irritants act more effectively than electrical.—*Wiener medicinische Jahrbücher*, 1878, s. 1. J. M. P.

ON THE EXCRETION OF CARBONIC ACID IN FEVER.

A VERY important contribution to the pathology of fever has been made by Leyden and Fraenkel, who publish a preliminary account of their investigations in the *Centralblatt f. d. med. Wissenschaften* for Sept. 28th. A great deal of uncertainty still prevails as to the oxidations which occur during fever, and the results of observations on the excretion of carbonic acid are discrepant. Senator has found in dogs that the excretion is not increased. Leyden, in observations on men, has observed a considerable increase—much greater than could be accounted for by the oxidation of the carbon of the albumen, whose nitrogen appears as the febrile excess of urea. The present series of observations were made on dogs, in whom, after having fasted for several days (during which time repeated estimations of their carbonic acid elimination were made), fever was excited by injection of fresh pus into the cellular tissue of the thigh. By this means a permanent elevation of temperature of from 2° – $3\frac{1}{2}^{\circ}$ C. was produced. Numerous observations were made to determine the normal excretion of fasting dogs in whom fever had not been induced, and it was found that in these cases the carbonic acid diminished steadily as starvation continued. From the data thus obtained, it was possible to calculate the ratio of CO_2 in febrile dogs to that which would have been excreted by the same animals at the same period of starvation if fever had not been induced. The result was that, *without exception*, the excretion of CO_2 in dogs experiences a *considerable* increase under the influence of the febrile elevation of temperature; and the increase is in proportion to the intensity of the fever. Thus, in one instance, where the elevation of temperature was

greatest, the increase of CO_2 was 80 per cent.; in four others, 80-40 per cent.; and in two where the fever was moderate, 10-20 per cent. The experiments were made with an apparatus constructed on the principle of Pettenkofer's chamber, and which was large enough to hold conveniently a dog weighing from 20-40 kilos. The authors claim by these experiments to have demonstrated for the first time, by an exact and unobjectionable method, the constant increase which the oxidative processes undergo in fever. The increased oxidation, however, represents only one factor in the production of the high temperature of fever; the second is the altered discharge of heat brought about by the exciting cause of the fever, and which is dependent immediately on a peculiar alteration in the innervation of the vessels of the skin and lungs. Of the proofs of these alterations in cutaneous circulation, the only one which has been hitherto known is the rigor. The authors record another which has been recently discovered by Bachrach, working under their direction. Certain substances, when absorbed, rapidly pass into the urine and are readily detected—such as iodide of potassium. Under normal circumstances, iodide of potassium, when given by subcutaneous injection, appears much more rapidly in the urine than when given by the stomach. In fever, however, the reverse is the case—the drug, when given by the skin, passing much more slowly into the urine than when given by the mouth, thus pointing to disturbed circulation in the superficial parts of the body.

J. M. P.

**TREATMENT OF MALIGNANT CHOLERA BY THE HYPODERMIC INJECTION
OF CHLORAL HYDRATE.**

SURGEON-MAJOR AUGUSTUS R. HALL records an interesting case in which the wife of a soldier at Gwalior was attacked with cholera. The attack was very sudden, the patient feeling well till after breakfast. At 11 a.m. she felt uncomfortable and oppressed, and lay down. She went asleep, and on awaking at 1 p.m. found that copious watery evacuations were literally flowing from her. Vomiting and cramp soon set in. She was then admitted into the hospital with the usual symptoms of a severe attack of cholera—collapse, blue lips, shrivelled fingers, voice sepulchral, pulse imperceptible. Shortly after admission, one scruple of chloral hydrate dissolved in three ounces of water was given by the mouth, but was rejected. At 4 p.m. six grains of chloral dissolved in sixty minims of water were injected into the substance of the left deltoid muscle, the point of the instrument being shifted without withdrawal. Half an hour after, sixty more minims were injected. The temperature in the axilla now began to rise steadily. By 6 p.m. eighteen grains of chloral had been injected, and the thermometer registered 97.8°F . The cramps had ceased and the vomiting was much less. Some serous evacuations had passed. At 7 she passed a small quantity of urine. From this time

onward small quantities of chloral were injected, and the patient progressively improved to perfect recovery. In commenting on this case, Surgeon-Major Hall calls attention to the fact that a resonant sound was emitted by the usual area of cardiac dulness, and that the sounds of the heart were almost entirely absent; and he thinks that at the commencement of an attack the contractions of the heart become more forcible, the calibre of the arteries becomes smaller, and there is generally increased arterial tension, probably caused by excessive stimulation of the vaso-motor centre. As the cold stage becomes intensified there is almost a continuous systole, no time being allowed for diastole. The absence of the pulse at the wrist is due, therefore, to an opposite cause than in syncope, the vessels and the heart being alike intensely contracted. Acting on this theory, he maintains that stimulants, useful in syncope when the heart is flaccid and relaxed, are harmful in cholera. The treatment he recommends is that all premonitory diarrhoea should be stopped with gingerade made with sulphuric acid, which last should be taken in half-drachm to one-drachm doses. No alcohol or opium should be given, but plenty of iced water; and chloral injections into the muscles should be at once commenced; nourishing soups may after a time be given, and if secondary fever follow, quinine may be administered.—(*British Medical Journal*, Sept. 21, 1878.)—*Practitioner*, October, 1878.

J. W. M.

SCARLATINA FOLLOWING SURGICAL OPERATIONS.

To the *London Medical Record* for October 15, 1878, Dr. T. F. Chavasse contributes a full abstract of an interesting lecture on the above subject, which appeared in *Le Progrès Médical*, September 14, 1878. The author of the lecture, M. Trélat, narrates two cases in which a very abrupt eruptive fever, having all the characters of scarlatina, appeared on the day following an operation—the patients having previously presented nothing abnormal. This was not a mere coincidence or chance, for—as M. Trélat shows—this sequence of scarlatina upon surgical operations has been often noticed and recorded. In 1858, M. Germain Sée, after a tracheotomy, noticed an eruption closely allied to scarlatina. In 1864, in a communication to the Pathological Society of London, Mr. Maunder stated that he had seen scarlatina supervene after two lithotomies had been performed upon children. The discussion which followed brought to light a certain number of similar facts. Dr. Broadbent had seen three cases; Dr. Crisp, a fatal case after circumcision; Mr. Callender, a case after lithotomy; Mr. H. Lee, three cases; Dr. Martin, one case. In 1868, M. Verneuil published (*Gaz. Hebdomad.*, No. 46, 1868), and subsequently through his pupils (Tremblay, *Gaz. Hebd.*, 1870, et *Thèse de Paris*, 1876), some observations on cutaneous manifestations, some true eruptions following septicæmic conditions. In a work recently translated

into French (*Leçons de Clinique Chirurgicale*, Traduction de M. Petit, 1877), Sir J. Paget has devoted a short chapter to the explanation of analogous facts. He mentions ten cases observed in children. Mr. Howard Marsh, in an additional note to the chapter, confirms, on all points, the opinion of Paget, and reports eight cases. Mr. Thomas Smith (in the same note) says that, in forty-three children upon whom he practised lithotomy, seven had scarlatina, and the eruption varied according as it appeared on the first to the third day after the operation. One of M. Trélat's pupils, M. Cartaz, observed the following case during the campaign of 1870:—A young guard, aged 20, was brought to the ambulance with a penetrating wound of the knee, caused by a firearm. Resection of the knee was practised four days after the injury, the patient refusing amputation. The third day after the operation, scarlatina appeared, the diagnosis of which was only tardily arrived at, as at first, before the eruptive stage, it was believed to be pyæmia, on account of the intensity of the fever. No scarlatina existed at that time in the ambulance, but ten days afterwards two cases were noted. M. Trélat observes that these facts are the more remarkable and worthy of study, as for a long time scarlatina has been known to follow delivery in conditions analogous to scarlatina after operations. M. Hervieux, in an epidemic which he observed, found that the patients of the Maternity Hospital, who were attacked, presented symptoms of the fever in the early days of the week following the confinement, and then there was no epidemic of scarlatina in Paris. In more recent times, gynecologists have been much occupied with this question; and an interesting discussion was raised two years ago at the Obstetrical Society of London, some wishing to make scarlatina play a particular rôle in the pathogenesis of puerperal fever, others seeing a frequent complication, presenting ties of reconciliation with the traumatism of delivery. This puerperal scarlatina, as it has been designated, resembled in every point in its course and evolution that now described; the same rapid commencement about the second or third day after delivery; the frequent absence of premonitory symptoms; the irregular course and divergence from the normal type. In a long and important work, founded on no fewer than 141 observations, Olshausen has dealt with this subject. In his memoirs (*Archiv für Gynäkologie*, Band ix., Heft II.), are established the points of similarity between operative scarlatina and puerperal scarlatina. M. Trélat concludes his lecture with the following *résumé* in the form of propositions:—1. After slight operations, complications disquieting at the onset may arise, which are no other than those of scarlatina. 2. This scarlatina has not the features by which the disease is generally recognised: the commencement is more sudden—it appears in the first days after the traumatism; the throat is sometimes but little affected; in a word, the symptoms and course are anything but typical. 3. The wound, however small it may be, suffers from the invasion and evolution

of this complication ; its cicatrization is greatly retarded. 4. The different septicæmic eruptions must not be confounded with this scarlatina ; the course and symptoms will make the diagnosis easy.

J. W. M.

GROUP CURED BY HYPODERMIC INJECTION OF SULPHATE OF ATROPINE.

DR. DE PONTÈVES, of Antibes, has published a full account of a case of croup where a fatal termination seemed inevitable, but which resulted in recovery, owing, he believes, to hypodermic injections of sulphate of atropia. On the third day of the attack he found his patient—a child three years old—to whom the usual remedies had been given, in a state of commencing asphyxia. The efforts to breathe could be heard in the street ; the epigastrium, instead of rising at each inspiration, was hollow ; the face and neck were enormously swollen and of a violet colour ; there had been no attempt at vomiting, though large doses of sulphate of copper had been given. At once three drops of a one per cent. solution of sulphate of atropine were injected by a Pravaz syringe, on the left side of the neck, on a level with the pneumogastric. At the end of a few minutes a change for the better took place, the respiration became less frequent, and the crowing diminished. Four hours afterwards the child was found tranquil, and, though the respiration was still troubled, dyspnoea was no longer intense. A second injection was given and the amelioration shortly afterwards became very marked. A few days afterwards the recovery was complete. *À priori* the treatment is a rational one. The real cause of death in croup does not reside in the false membranes. M. Jaccoud, in his *Traité de Physiologie Interne*, speaks of the “very numerous cases in which croup kills without laryngeal obstruction sufficient to explain death.” He adds that, “though often the expulsion of the false membrane is followed by great relief marking the diminution of the dyspnoea, yet the cases are far from rare in which the remission is absent or inappreciable—a fact sufficient to prove that croupal dyspnoea has more causes than the obstruction of the larynx by exudation.” When the pneumogastric nerves of dogs are divided in the neck, what always happens is the occlusion of the glottis from paralysis of the recurrents, and after death there is found intense congestion of the lungs, pulmonary œdema, dilatation of the smaller bronchi, and vesicular emphysema. Now these symptoms and lesions are also those observable in croup and capillary bronchitis. The essential cause, therefore, of asphyxia in croup seems to be the paralysis—more or less complete—of the pneumogastric. This view is supported by the fact that it is difficult, and often impossible, to produce vomiting. Belladonna, being an excitant specially of the pneumogastric, appears to be indicated in cases such as have been detailed.—*L'Union Médicale*.

S. W.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XIV.—*Necrosis without Suppuration.* By WILLIAM COLLES, M.D., F.R.C.S.I.; Surgeon to the Queen; Regius Professor of Surgery in the University of Dublin; Surgeon to Steevens' Hospital.

IN Vol. LXIV. of this Journal (September, 1877) I have recorded a case of what the surgeon (Dr. Deely) previously in attendance and I considered acute necrosis, in which profuse suppuration, formation of external callus casing, and the rapid absorption and disintegration of sequestrum were all completed in the space of seven months.

I subsequently received a communication from Mr. Morratt Baker, in which he records a case of what he has named necrosis without suppuration. In his paper he gives details of the case, in which the train of symptoms differed so materially in all respects from those that are generally accepted as denoting necrosis, that he was fully justified in his description, and deserves thanks and credit for drawing the attention of surgeons to the subject. Having lately met a case presenting many peculiar features, and supporting the views of Mr. Morratt Baker, I take the opportunity of here recording it:—

Miss —, aged fifteen, a healthy-looking girl, was thrown from a carriage, and received some bruises about the face; also there was

observed a slight transverse wound about a fourth of an inch at the ulnar side of the left wrist close to the joint. Through this opening projected a small piece of very rough bone, which was considered by her medical attendants, Drs. Wilmot and Kavanagh, to be the lower end of the ulna broken off and projecting. It could not be restored or retained in position.

I saw her two days after the accident, and perceived a slightly fœtid odour from the wound, which, however, might have been attributed to commencing suppuration.

She was put under the influence of chloroform, but we could not restore the natural form to the limb. We therefore agreed to remove the projecting loose portion of bone. With this view I caught the projecting point in a forceps, and passed a director behind it. I was surprised to find the extent to which the director went, and the freedom from all obstruction of ligamentous or other attachment. Having bent the hand backwards, and pressing the director inwards, there slipped into the vessel underneath a portion of bone about two inches long. On examining the forearm the bones seemed quite naturally in their positions, but were perhaps slightly larger than those of the opposite limb; the motions perfect. Splints were applied more as a precautionary measure than from any necessity. There was slight suppuration, but no bad symptoms supervened. On examining the bone extruded, we found it about two inches long, much smaller than we would expect in a person of her age, and quite devoid of periosteum; no cartilage or epiphysary end, but a small rough deposit of new bone; the upper end irregular, jagged, but in no part did we find any appearance of its having been acted on by living parts, and on section—which was difficult from the dryness and friability of the bone—the medullary cavity was the same as in ordinary section of bones.

On further inquiry we found that about eight or nine years ago she fell and received what is called a sallyswitch fracture of both bones; this was treated by splints and long rest; she recovered with perfect use of the limb, and the parents remarked only a slight thickening of the bone.



That this was a case of necrosis there can be no doubt; and if it was the result of injury, it must have been of only two days'

* Viewed externally this is evidently a deposit of new bone.

duration, which is scarcely possible, for the bone to die, to lose its periosteum, cartilage, and epiphysary end, and for a new case to be formed around the dead bone. Hence it was more probably the result of the fracture received so many years before, and presents us with a case in which, previous to death, a new knob of bone was deposited. The bone dies, and does not excite any inflammation; new bone is deposited around it more smooth and without any of the openings that are usually found in such cases, and the sequestrum, although so long remaining in its cavity, not in the least acted on by the living parts, and giving an odour indicative of death only when exposed to the air.

It would be a curious consideration as to whether the radius might not be in the same condition. I think cases have been recorded in which a dead portion of bone has been found in the upper extremity of the tibia without suppuration, but these have been in grown persons.

This case, added to those produced by Mr. Baker, tends to prove that we may have a very obscure kind of necrosis without suppuration or any evidence of inflammation, and that this dead bone may remain *in situ* for an indefinite term, as must have been the case in Mr. Baker's cases, for here the disease could not have gone through the changes recorded by him in so few weeks—it must have been years undergoing these deviations from its natural growth.

ART. XV.—*A Fatal Case of "Railway Spine."** By S. M. MACSWINEY, M.D., Fellow of the College of Physicians; Physician to Jervis-street Hospital.

It could be easily shown that each epoch of the historic period has been characterised by some peculiar disease, or by some variety of injury directly arising out of the exceptional hygienic defects or the predominating activities of the particular era. It is thus that, in our own day, railways have introduced to the notice of the practitioner of medicine quite a new class of injuries and their results. The pathology of the conditions resulting from these injuries would appear to be still far from being completely determined; but the following, amongst other, forms of lesions, leading to a fatal termination in cases of spinal concussion, have been inferred from

* Read before the Medical Society of the King and Queen's College of Physicians, Wednesday, November 6, 1878. [For the discussion on this paper see page 508.]

symptoms existing, during life, in the patients, or have been revealed by *post mortem* examination:—

(a.) Intraspinal hæmorrhage outside or inside the coverings of the cord, or in both situations.

(b.) Tearing of the membranes.

(c.) Extravasation of the medulla.

(d.) Disintegration and inflammatory softening of the cord.

(e.) Anæmia of the nervous centres.

(f.) Lesions of the brain and sympathetic ganglia.

These injuries, and even the existence of such a condition as "concussion of the spine" causing them, used to be doubted by medical men, occasionally, some time ago; but at present no one will deny that the gravest nervous affections, and death itself, may follow a violent concussion from a railway collision, even though there be no obvious lesion of the vertebral column, and that no symptoms arise for some time after the accident.

The following case affords strong corroboration of this statement:—

On March 8th, 1878, I visited Miss J. H., aged forty years, in consultation with Mr. Meldon, who, as I wist old, had been for some days previously in attendance upon her. The history I got on this occasion was that she had been travelling by train on the line between Kingstown and Dalkey on February 27th, when an accident occurred, owing to a collision between an advancing train (in which she was) and a set of carriages which had broken away from a preceding train, and running rapidly backwards down the incline which exists there, a violent contact necessarily ensued. Miss H. was considerably shaken at the time, and somewhat bruised, but soon recovered from the fright and weakness occasioned by the occurrence. After a short rest on the embankment she walked away unconcernedly, and made no complaint for two days. Then she began to feel sick, became very pale, and was in considerable pain about her body generally. She had now, at the time of my visit, been eight days confined to bed, and had been medically visited and treated daily since she had lain down. During this time she had been feverish and nervous, and had suffered a good deal from urinary irritation, pain in pelvic region and down left leg, together with much insomnia. I found her flushed, anxious-looking, and excited. She received me in an abrupt, almost rude manner, was short and irritable in her answers to my questions, and exhibited generally a wayward and unpleasant manner. Her sister, who was in attendance, assured me that she herself was much surprised at this display of pettishness and temper, as such was quite

contrary to the patient's usual demeanour, which was retiring, mild, and very gentle.

Present State.—Her pulse beat 120 in the minute; her skin was hot, her face flushed, her tongue coated slightly, and red at the tip; she felt pain, on pressure, in the left iliac region. There were five bruises visible on the outside of the left thigh; each was about one inch in diameter—but they were not swollen—and scarcely painful.

9th.—Symptoms same as yesterday; she slept but indifferently well last night. Pulse 120; tongue coated; left side of abdomen painful to pressure; takes food, but without much appetite.

10th.—Visited the patient in consultation with Drs. Forrest and Meldon. Pulse 130; tongue whitish, with red papillæ interspersed. Looked depressed and nervous. She got a very distressing “sobbing” fit after having been questioned for some time in the kindest manner by Dr. Forrest.

11th.—Pulse 120; tongue coated; temperature $97\frac{1}{2}^{\circ}$ F. This morning she had a bowel discharge, which was mixed with blood.

12th.—She slept badly last night. Pulse 120; tongue red, glazed. She complains of pain between her shoulders, and more slightly down the spine; also has some irritation about the urinary system and passage; has marked increase of sensibility over left side of trunk.

13th.—Pulse 120; tongue dirty. She now complains of having very severe pain between her shoulders, and earnestly asks for something to relieve it.

14th.—At our visit to-day she told us that she rose from bed this morning, walked across the room, and then, after a short delay, returned to bed. In a few minutes she experienced a very severe pain in her left side and leg, which lasted for a long time, and depressed her very much. Her pulse beat 126 in the minute; her temperature was 97° F.; her tongue had a creamy exudation spread over it in parts; her face was pale and anxious.

15th.—Pulse 126, bounding; tongue continues coated, and is red in parts. The urine was carefully examined to-day; it was faintly alkaline in reaction, and did not contain albumen. She complains of feeling very nervous, and looks anxious and uneasy. A circle of dark discoloration is forming about her eyes, which are becoming noticeably congested.

16th.—She has a pulse to-day of 138. The slightest touch suddenly made upon any part of the body causes her to start—a result due to the hyperæsthesia which is now well marked. The noise of the cars passing in the street gives her a shock; and she complains of having been roused out of a troubled sleep by the rattling of some passing vehicles, and in this way getting a terrible fright. She has pains in left thigh and leg, as also, but only slightly, in her back. Her appetite, which up to this was moderately good, is now beginning to fail.

17th.—No important change in the symptoms, save that she looks less nervous to-day, and slept well for five or six hours last night. But the pulse-beats continue high (132), and the tongue is unaltered in appearance.

18th.—Pulse 120; tongue dirty; had sick headache yesterday afternoon, and slept badly last night. She now takes no solid food. There was slight "bilious" vomiting in the evening. She is restless, weak, and despondent, and complains much of pain in her back.

19th.—Pulse 110; tongue thickly coated. She had a bad night, slept but little, and declares she is much worse. She suffers from thirst, and a feeling of being too hot.

20th.—Pulse 124. Since yesterday she has been extremely nervous, and apprehensive of death. To-day she is hot and feverish; she has an excited look; her tongue is heavily coated; her breath offensive.

22nd.—Her look is anxious and unhappy; she persists in declaring that she is dying; her pulse is 110; her temperature in the axilla 97.8° F., and in the mouth 98° F.; her tongue is coated; her skin is dry and hot.

25th.—The report to-day is that she was very melancholy and depressed all day yesterday, feeling that she was dying, and sending for her clergyman. That this morning, however, she had suddenly become quite hilarious, laughing and smirking in a most excited manner. We found her in a state of high hysterical exaltation, talking loudly, and laughing immoderately. Her pulse was 130, and I noticed well-marked vascular injection of the conjunctivæ. At 5 p.m., Dr. Wm. Moore saw her in consultation with Mr. Meldon and myself. Her state was, in all particulars, the same as in the morning, except that her pulse had fallen to 100.

26th.—Has had scarcely any sleep, and continues in a condition of great hysterical exaltation—at one moment laughing immoderately, at another talking rapidly and somewhat sillily.

27th.—To-day the excitement has quite subsided. She is now in a low, subdued state of mind, disposed to take a gloomy and despondent view of everything. She had slept badly through the night, talking much and gloomily on various subjects, such as death, religion, and the like. The almost constant note of quick pulse and dirty tongue is found recorded in this day's report. A few spots had been observed making their appearance on the extremities lately, and to-day there is a sparse and scattered purpuric eruption on the arms and legs—not more perhaps than six spots altogether—in tint much like those met with in cerebro-spinal fever occasionally.

April 1st.—We found the patient much excited in manner, talking in an incoherent, rambling way occasionally, and at other times speaking almost quite rationally. Her face was flushed; her pulse still quick (108);

her tongue white. Her whole appearance gave me the idea of there being some strong mental strain acting upon her, and I could not feel quite sure that her mind might not give way. As a precaution, we arranged for the attendance of a caretaker, should a necessity for more strict watchfulness arise.

4th.—On this day the patient's sister called upon me, in an alarmed manner, to tell me that her sister was "out of her mind," and to implore of me to visit her immediately. Mr. Meldon and I found her half sitting up in the bed, looking to be in a very moody and surly humour. When spoken to, she did not reply until repeatedly urged thereto, when she said something not in the least relevant to the question put to her. Her pulse was 120; her face dusky; her conjunctivæ injected. She had an exhausted, wearied, very unhappy look, most like what is seen in the subject of melancholic mania.

5th.—Same report substantially as on yesterday; she speaks but seldom, and then incoherently; she refuses all food.

9th.—Dr. R. McDonnell saw her in consultation with us to-day. We found her with a feeble pulse of 120. Her face was pale, and had a scared look; her tongue was coated. She did not appear to recognise anybody, and would not speak to us; she merely said, now and then, a few meaningless words. Her case now appeared to us to be desperate.

14th.—Her condition to-day is greatly altered for the worse; her appearance is wasted and haggard almost in the last degree; her pulse is quick and thready; she took almost no notice of anybody or anything around her, and spoke but a very few, quite incoherent, words. On yesterday morning she had been seized with severe epileptiform convulsions, which lasted, with short intervals, for twelve hours. She was free from them to-day, but the prostration due to the exhaustion they had produced was extreme, and her state was hopeless.

For the succeeding four days she remained in much the same condition, taking no notice, and obviously sinking.

19th.—I saw her at twelve to-day; she was then in a seemingly moribund state; she lay in a half-asleep and quite unconscious condition; she was greatly wasted, and looked shrivelled and old. There was a blackish-brown ring of discoloration surrounding her eyes, which were partially closed and sunken. Her pulse was weak—indeed almost indistinguishable; she was breathing rapidly, and with apparent distress.

20th.—She died at 6 a.m. to-day, having survived the accident for exactly six weeks. An autopsy would not be permitted.

I have deemed this case deserving of being placed upon record on account of the character of the symptoms first manifested, which were of a nature so slight as to be calculated to deceive the observer as to the prognosis, as also to confirm the observation often pre-

viously published—that grave and even fatal consequences may ensue from the mere shaking of the nervous mass in a railway collision without any wound or other observable lesion being produced. Reviewing this case, the question at once arises—To what was the fatal result due? There can be no doubt that the accident brought about the condition which ended in death, but it is not so clear what were the several steps of the patient in her progress towards demise—what, in fact, was the paramount and immediate cause of death; and I will at once say that I am not prepared, there having been no *post mortem* examination, to give as satisfactory an answer to this question as could be desired. For although something had happened which resulted fatally, still it is true that not one of those pathological states which, as we have seen, are found present in other cases, could be diagnosed with certainty in this patient during life. It was, in fact, as though the concussion had in some way shaken the nerve force out of the cord without leaving any marked evidence of injury recognisable during life.

In a railway accident of the kind which happened in this instance a check suddenly occurs to a train which has been moving forwards at a certain, generally a considerable, velocity. Its contents—the passengers—move with it, and form, so to say, part of it when the collision takes place. At this moment the traveller, retaining the motion his body had already acquired, and being in a state of inertia, is liable, and is likely, to be thrown either backward or forward, according as he is sitting with his face or his back to the engine, and to sustain severe blows, often without any sign of injury on the outside of his body. The force of the blow thus received may be great—sometimes it is very great—depending upon the speed at which the train was travelling, its momentum, the suddenness and more or less completeness of the arrest, and other considerations of minor importance. A heavy train moving at the rate of even only fifteen or twenty miles an hour, has an enormous momentum, and the degree of shock experienced by a passenger's body when an accident occurs must be materially influenced thereby. Now, of all parts of the frame the spinal column, unprotected by soft parts, is most exposed to injury from the "jar" caused by a heavy train when a collision happens, and its contents—the spinal cord—not quite filling the vertebral canal, are sure to be brought into violent contact with its bony case, whereby severe damage is inflicted upon the nervous system, although no actual blow may have been received.

Dr. Wilks ("Diseases of the Nervous System," p. 237) makes the following remarks, bearing upon this point:—"If one remembers also that some of the component parts of this mass of material are fragile human beings, composed of flesh and blood, with delicate, soft brain and spinal cords, no surprise can be felt in witnessing the terrible results of a train proceeding at the rate of forty miles an hour, when brought to a sudden stop."

In a railway collision there may result to a passenger either (1) "shock" merely, or (2) "concussion," or (3) "contusion" of the cerebro-spinal system. In "shock" the function of the nerves is impaired, and the action of the nervous system is thus lowered. It has been found that great confusion and injury, either temporary or permanent, to the nervous functions sometimes follow from a "shock" to the cerebro-spinal system, when the soft cerebral and spinal mass is struck violently against the bony case in which it is enclosed. That slight blows often cause serious results, is now well established. Wilks (*Med. Times and Gazette*, Vol. II., 1868, p. 468) says:—"It has only been in railway times that we have witnessed so many cases of permanent disease from shock to, or shaking of, the cerebro-spinal system." An apparently trifling injury to the back or sacrum may give rise to an inflammatory process which may, after the lapse of years even, end fatally. And often a slowly creeping paralysis will ensue upon a shake to the cerebro-spinal centre, where at first no ill result was apparent. In such cases this seeming contradiction may sometimes be noticed, that whereas the more severe and dangerous phenomena often result in the very cases in which the injury appears to be but trifling, on the other hand it occasionally occurs that the severest primary lesions present to observation only slight and unimportant symptoms.

Whether any structural injury was inflicted at the time of the accident to our patient, or whether the case was one essentially of exhaustion of the cord, may well be matter of controversy. Handfield Jones (*Med. Times*, Vol. II., 1865, p. 4) considers that in such cases as these, "if actual organic lesions were produced by the concussion, it is scarcely possible that paralysis should not ensue immediately." And again he says (*loc. cit.*):—"It seems to me almost matter of certainty that the primary derangement must be essentially functional, consisting probably in a lowering and weakening of the nutritional power of the tissue." And Erb, of Heidelberg, entertains the opinion (Von Ziemssen, Vol. III., p. 347)

that "molecular disturbance is the chief element in (spinal) concussion."

Was this a case of "spinal anæmia?" Anæmia of the cord is denoted usually by a variety of anomalous and generally subjective symptoms. Moreover, as a rule, it is never fatal.

Was it "hysteria?" Emotional and hysterical symptoms may arise from "shock" without bodily injury; but "hysteria," which, when it arises in these cases, is a state of mental perturbation, probably due to a vibratory thrill communicated to the nerve-centres, is also, I believe, never fatal. These two, then, may be excluded.

The bony structures were uninjured; there was no paralysis of the limbs—nothing perhaps to warrant the opinion that the cord itself was the subject of a grave structural lesion. But it is certain, nevertheless, that in such cases where at first "concussion" can alone be predicated, paralytic symptoms are sometimes produced at once, and may either disappear after some time or persist and even get worse, as though the case were one of "contusion" rather than "concussion," and that a secondary effect had followed in the cord, which may now be suffering from actual rupture or hæmorrhage into its substance.

Many of the recorded cases show that a longer or shorter delay will sometimes take place in the development of symptoms which may ultimately, however, terminate fatally. A good illustration of this statement is given by Dr. T. Buzzard (*Lancet*, Vol. I., 1867, p. 510). A man, aged fifty-eight, was in a train which met with a severe collision. He "was thrown forwards and backwards in the carriage. During the delay" . . . "he rested on the embankment for some time. He complained afterwards of pain in his back, and showed symptoms of shock to the nervous system." For ten weeks he was unable to walk, suffering constant pain in the back, and occasionally in the head and limbs. His nights were almost sleepless. Some improvement afterwards took place, and he could walk without assistance; but the improvement did not last, and he died four months after the accident.

It is of interest to inquire what was the cause of the hyperæsthesia so well marked in this patient. It was due, doubtless, to injury of the cord, or of the nerves coming from it, but what was the nature of the injury? Either meningitis or myelitis may be assumed to have been present. It is very difficult to differentiate these two conditions—so much so that some authorities class both

affections together. But from the fact that pressure did not elicit much expression of suffering, from the occurrence of cerebral symptoms, from the presence of subjective pain in the back, from the absence of paralysis, perhaps also from the occurrence of the purple-coloured spots which has been mentioned, I may be justified in leaning to the opinion that *meningitis*, rather than *myelitis*, had been set up. In addition, some local extravasation of blood may be supposed to have happened, owing to rupture of some of the vessels within the vertebral canal, or else those traversing the inter-vertebral foramina. Pressure from this extravasated blood would stretch the fibres of the nerves, and give rise, I presume, to hyper-æsthesia, more especially if the pressure were, as it probably was, made upon the posterior sensitive roots of the spinal nerves.

The clinical thermometer always denoted this patient's temperature as being of a lower degree than the normal. In some cases of spinal injury the temperature is lowered; in others it is increased; whilst in others again it is irregularly distributed. This may reasonably be assumed to be due to a different seat of the lesion in each case. Some, if not all, physiologists are of opinion that there exists in the spinal cord a heat-regulating centre, the cilio-spinal region. And indeed I believe it has been demonstrated that the principal centre of the vaso-motor system is situated in the medulla oblongata (*Owsjannikow*). Now, in a spinal wrench from a railway collision this centre may be disturbed, and there may be paralysis or other lesion of the vaso-motor system of nerves which regulate the supply of blood to the vascular apparatus, and in this event I apprehend a lowering of temperature may sometimes result, there being, in fact, an increased loss of heat immediately due to an acceleration of the blood current. And it will have been observed that in this case there was no parallelism between the range of temperature and the frequency of the pulse—a noticeable fact in the patient's history being a greatly accelerated vascular circulation. It would appear that the vagus, which, in addition to inhibitory, contains fibres which accelerate the heart, was in a state of irritation at its source in the medulla oblongata. Making due allowance for exceptions, the rule is that a rapid pulse, especially if it be above 100, in an adult indicates disease. This axiom was constantly present to our minds as we noted the invariably high rate of the pulse in our patient, and it forbade our deriving hopeful augury from any temporary improvement in other respects that arose during the progress of the case.

In this patient the remote sequelæ were, it is plain, more noticeable than the immediate effects, and this agrees with what has been observed by others as to the results of that form of "shock" which is consequent on a railway collision. Two occurrences—the wasting and the epileptiform "fits"—were marked symptoms about the end of the illness. The general muscular atrophy was very considerable—so much so that the patient presented, towards the close of her life, an extremely wasted appearance; the "fits" ushered in the final event. The progressive muscular atrophy was due, doubtless—as possibly was also the quick pulse—to some morbid condition of the sympathetic ganglia, whilst the convulsive symptoms would perhaps indicate ultimate extensive degeneration of the spinal cord, following upon the original "jar" or "shock" to the organ.

Suspicious (sometimes, doubtless, well founded) are often entertained that patients "malingering" after railway accidents, and even that death, when it occurs, is due to some cause other than the collision. The following physical facts, however, were to be observed in this case:—(a) Vaso-motor paralysis, indicated by the flushings and injected conjunctivæ. (b) An affection of hearing, denoted by the effect produced by the street noises. (c) Disturbed nutrition, evidenced by the wasting. (d) The neuroses—i. e., hysteria and epileptiform convulsions. (e) The quick pulse, which is almost constant in railway injuries. (f) Change of character, sleeplessness, and constipation.

Howsoever true, then, it may be that in some instances—even those terminating fatally—an imposition may have been attempted, and the collision may not have been the cause of death, I submit, with much confidence, that the array of symptoms just laid before you—symptoms so characteristic of spinal lesion—places it beyond the region of doubt that the patient in the present case was the victim of a railway injury.

ART. XVI.—*Two Unusual Cases of Vertebral Caries.** By CHARLES COPPINGER, L.R.C.S.I., &c.; Surgeon to the Mater Misericordiæ Hospital.

THE following examples of a disease with which hospital surgeons are but too familiar will nevertheless be found to possess some features of novelty, if not of interest.

In the first case the patient's death was caused by a rare com-

* Paper read before the Dublin Biological Club, November, 1878.

plication of psoas abscess—arterial hæmorrhage, while the second affords an example of caries in the cervical region, in which recovery was preceded by the exfoliation of a very large portion of the first vertebra.

CASE I.—Nicholas Edwards, a healthy-looking man, aged twenty-seven, was sent to the Mater Misericordiæ Hospital on the 19th of January by a very intelligent practitioner in the County Meath, who described his case as one of hernia, and requested that he should be provided with some suitable description of truss, the ordinary inguinal one recommended by him having proved ineffective. On examining the patient I found in the right groin, in the situation of the external abdominal ring, a small tumour which was tense and elastic, and which was the seat of a distinct impulse when the patient coughed, while on making pressure it receded gradually and again gradually reappeared. The patient, moreover, stated that the tumour was larger when he stood up and became less when he lay down, which proved to be the case, and that it had first appeared about two months before, and had after a time again receded. The tumour thus in some respects resembled an inguinal hernia, but a brief examination sufficed to show that it was not of that nature, for pressure on the abdomen increased its feeling of tension, and caused at the same time a distinct bulging or protrusion of the abdominal wall above Poupart's ligament.

There was also a history of obscure pain and loss of health dating for about two years before the patient's admission, the pain being complained of in the region of the tumour and radiating down the thigh; and there was present, without local tenderness or angular prominence, a slight antero-posterior curvature corresponding to the lower dorsal region. The nature of the case was now of course obvious, and on the 1st of February, about a fortnight after the patient was admitted, the abscess opened spontaneously, not at the external abdominal ring, nor at the usual situation below Poupart's ligament, but at the side, above the iliac crest, a large quantity of healthy pus flowing away.

Four days later the resident pupil, when dressing the case in the morning, noticed that the matter discharged was stained with blood, and the patient told him that during the night, while getting into his bed, he had "felt something give in his side." I attached no special significance to this history, imagining that the blood had come from some small vessel at the opening through the skin, and I was consequently much surprised on the next morning to find the abscess apparently filled with dark-coloured blood, which spouted from the opening when the pad of tenax by which it was closed was removed. After some large clots had escaped, the blood appeared mixed with pus and of a lighter colour, but as it still continued to flow, and the patient complained of faintness, the opening

was carefully closed with a pad and bandage, and after a consultation with my colleagues—who were of opinion that nothing in the shape of operation was possible—I sent to the patient's friends to inform them of the approaching fatal termination of his case. Blood now escaped in such quantity whenever the pad was removed, or any attempt made to explore the cavity, that the patient's death was at first hourly expected. He, however, lingered for seven days, bleeding occasionally from underneath the pad, and afterwards from various new openings in the neighbourhood of the original one, and on the eighth day died of exhaustion.

At the *post mortem* examination, which was made twelve hours after death, the anterior wall of the abscess, which was adherent to the abdominal parietes, was slit up, and the abscess cavity, which was distended with blood, ascertained to be very large, extending downwards into the pelvis, the right side of which it completely filled, and stretching upwards as high as the upper lumbar vertebræ, the bodies of which were extensively diseased. The abscess, moreover, followed the course not only of the right psoas muscle, but also passed along the upper portion of the left, the sheath of which was distended for about its upper half. The intestines and liver were now removed, the cavity of the abscess sponged out so as to expose its posterior wall, and water injected into the saphenous vein in the thigh until the abdominal system of veins was fully distended. It was thus rendered clear that no rupture of their walls existed. Water was now directed into the aorta, which was divided for the purpose, and was at once visible in a thin stream issuing from a vessel low down on the posterior wall of the abscess. The cavity was again carefully examined, and the aperture traced to a whitish cord which passed horizontally along the iliacus muscle about an inch below the iliac crest. The iliacus muscle itself was soft and friable, so that the finger easily penetrated its substance, and it was moreover quite black, so that the whitish cord, which proved to be a large branch of the ilio-lumbar artery, was rendered distinctly visible in the broken-down tissue by which it was surrounded.

It was then obvious that the hæmorrhage which had proved fatal had come from a comparatively small artery, which accounted for the delay in the fatal termination of the case, while the circumstance that the vessel was not completely but partially divided explained the persistence of the bleeding.

The rupture of the artery, in all probability, occurred at the moment the patient felt the sensation of "something giving way" in his side, and was probably coincident with a rupture of some of the fibres of the degenerated muscle on which the vessel lay, caused no doubt by the patient's exertion in getting into his bed.

The points of interest in this case would seem to be the following:—

(1.) The protrusion of the abscess through the inguinal canal and external abdominal ring, which, although noticed by Brodie in his work on "Diseases of Joints," is rare.

(2.) The history of retrocession of the tumour, an occurrence not very unusual in psoas abscess, but one which in this case increased its liability to be mistaken for a hernia, while the increase in size of the tumour in the erect posture and its impulse when the patient coughed were likewise misleading. On the other hand, the distinct fluctuation and bulging forward of the lower part of the abdomen by what was obviously a collection of fluid was, apart from the spinal curvature, unmistakable evidence of the nature of the tumour at the time the patient was seen by me. I can easily understand, however, that its diagnosis may have at an earlier period presented considerable difficulty.

(3.) The fatal termination by hæmorrhage is very unusual, and I can discover but two recorded cases—one reported in *The Dublin Journal of Medical Science*, Vol. IV., and also mentioned in Cooper's "Surgical Dictionary," in which the patient died from hæmorrhage into a psoas abscess, the blood escaping from an ulcerated opening in the external iliac artery; and a second recorded in Mr. Butcher's "Surgery," in which death was caused by perforation of the vena cava by a spiculum of bone detached from the third lumbar vertebra.

CASE II.—M. L., a law clerk, aged twenty-five, presented himself at the Mater Misericordiæ Hospital on the 17th October, bringing with him the anterior half arch of his atlas, or first cervical vertebra, which he had spat from his mouth while walking in Sackville-street on the previous evening. The following is the history of his case:—Some five years ago he suffered from secondary syphilis, including a sore throat and a general rash, and this attack, he says, was cured by a course of mercury. In last October he again became ill, his mouth became ulcerated, his neck became stiff and painful, and he was again treated with mercury by a physician at the north side of Dublin, until his mouth and gums became sore. He states that this was followed by an improvement in the condition of the inside of his throat, but by none in the state of his neck, which became very stiff, and so painful on movement that he was obliged, when walking through the streets, to control the motion of his head by supporting his chin on his hand. After a time the movements of his head became gradually less painful, but he now commenced to suffer

severely from pain, which he described as of a burning character in the muscles of the back of his neck. For this he sought relief at hospital, and was admitted for a time under the care of my colleague, Dr. Hayden, who has kindly given me a note of his condition. He was ordered a mixture containing iodide of potassium, which gave great relief to the pains, apparently of a neuralgic character, by which he was then affected, and diminished at the same time the stiffness of his neck, of which he complained a good deal. He suffered from no difficulty of swallowing, obstruction, or swelling of the pharynx, so that the nature of his case was somewhat obscure. He now left the hospital much relieved, and returned to his business—some stiffness in his neck, however, still continuing, and a slight discharge of pus and blood appearing occasionally from his nose. For the next four months he attended regularly to his business, and suffered no further annoyance until the evening of the 16th, when he noticed, while eating his dinner, some obstruction in his throat, and some time afterwards suddenly coughed up the large sequestrum figured below.



This was followed by an immediate improvement in his condition, which is at present fairly satisfactory. He has been able to return to his business; he suffers no pain, and he can bend his neck forwards and from side to side without difficulty. If, however, he attempts to move his head backwards, or tries thus to direct his face in the least degree upwards, he is attacked with severe pain, referred to a point at the back of his neck near the attachment of the left trapezius muscle, and corresponding to the point of exit of the great occipital nerve, to irritation of which the pain is probably due. He is himself of opinion that there is, to use his own words, "something wrong with a bone" in that precise situation, and to this he ascribes the fact that he cannot raise his head when he is lying on his back, but is obliged to lift it with his hand.

Movement of rotation in the neck does not seem at first sight to be at all interfered with, but a more minute examination reveals the interesting fact that a sort of compensatory motion of rotation has been established in the cervical spine, by which the action of the atlas-axis joint is rendered unnecessary. In this case, indeed, the joint between the atlas and the axis has been altogether destroyed, the exfoliated bone, including the whole anterior arch of the atlas, with, of course, its odontoid articulating surface.

The small portion of bone to the left of the engraving is a part of the transverse process, and came away at the time that the other portion was extruded, but as a separate piece. It no doubt was situated behind the vertebral artery, which was then probably surrounded by diseased bone. The large sequestrum presents at its right extremity a part of the inferior articulating surface, and at its left a large portion of the lateral mass and superior articular process, with, lastly, the prominent tubercle to which the end of the transverse ligament was attached.

The presence of this latter portion of the bone renders this patient's case very unusual, if not unique—there being no case recorded, as far as I am aware, in which recovery followed the destruction of this ligament or of its attachments. On the other hand, the sudden death so common in these cases is generally attributed to dislocation caused by this accident. Of this, the last two reported cases of atlas necrosis are good examples, and are to be found in the *Lond. Path. Reports* for 1871. In one case, Esther S., a woman suffering from cervical caries, died suddenly while drinking her tea—the lesion discovered at a *post mortem* examination being ulceration of the transverse ligament and consequent dislocation. In the second case a patient, under the care of Dr. Quain, died while raising himself in his bed, dislocation in this case being caused by caries surrounding the attachments of the transverse ligament.

Many other cases of fatal disease and injury of this ligament have been recorded, so that spontaneous dislocation and death have come to be looked upon as natural and necessary consequences of its destruction.

Necrosis of the atlas is, indeed, as might be expected, an affection from which there are few recoveries. I have been able to find but three cases recorded; one is related in Mr. Collis's book on "Syphilis," and occurred in the person of an apothecary who had taken no less than five courses of mercury before the sequestrum was removed. The case is not minutely described, but the exfoliated bone is said to have included the anterior arch with a portion of the articular process.

The next case is narrated by Mr. Keate in the *Medical Gazette* for 1835, and took place in a person who suffered from syphilis, and who had been repeatedly salivated. In this case the anterior half arch only was exfoliated.

The third case is to be found in the *Med. Chir. Transactions*

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for 1849. The disease in this instance also was syphilitic, and occurred in a patient who had been twice profusely salivated. In that case the central part of the anterior arch with the odontoid articulating surface was removed by Dr. Robert Wade.

Mr. Collis's case is mentioned as an instance of the effects of mischievous and repeated courses of mercury; and on the hypothesis that the mercury may have had something to do with the causation in the case which I have just read, I have noted the fact that in each of the four instances of this disease the patient was more than once profusely salivated.*

ART. XVII.—*On the Use of Pyrogallic Acid in Internal Hæmorrhages.* By AGMONDISHAM VESEY, M.B. Dub., Rostrevor.

ROSTREVOR being a well-known resort for those who seek sheltered winter quarters, I have had unusual opportunities of treating cases of hæmoptysis, &c. Of late one preparation has proved of such signal advantage that I wish to record briefly a few cases illustrative of the treatment.

In certain photographic processes pyrogallic acid is an active agent, and one cannot avoid getting more or less of the acid mixture on the hands, and from the remarkable astringent effect produced I was led to infer that it ought to be of service in the treatment of internal hæmorrhages.

The first case in which I used the pyrogallic acid was one of chronic phthisis. I was hastily summoned to see this lady, Mrs. W. I found that she had slight hæmoptysis, and was very much alarmed thereby. The acid was ordered in grain doses every half hour, and in two hours the hæmorrhage was arrested. In January, 1877, a more severe attack yielded promptly to the same treatment.

The second case was also a phthisical one. In this the hæmoptysis was very copious. Grain doses of pyrogallic acid were prescribed with the happiest result after a few doses had been taken. By way of precaution in both cases, a dose was given every four hours as long as the expectoration was tinged. This second case was in March, 1878. The patient has again returned

* I have omitted to mention a case recorded in Mr. Hilton's book on "Rest and Pain." In this instance a very small portion of the anterior part of the atlas was extruded.

to pass the winter here. No return of the hæmoptysis occurred, and there is considerable improvement in health.

The third case was that of a lady who, inheriting the hæmorrhagic diathesis (her daughter also being a bleeder), always required a tampon at the catamenial period, so copious was the flow. She underwent special treatment with no permanent benefit. Some five years ago she went to reside in England, and but recently returned to this neighbourhood, when she again came under my care for the old malady. I tried with her grain doses of pyrogallic acid with m. 40 extracti liquidi ergotæ every second, third, or fourth hour as necessary during the flow, with the effect of notably diminishing the flux and bringing it within normal limits. All other internal treatment had previously failed to give any relief. She has now tided over five or six periods, *tuto, cito, et jucundè*.

The last case in which I had an opportunity of using the acid was that of a pensioner who had served in the Crimea, and had suffered from malaria in India. It was ascertained that at one time he drank spirits to excess. I saw him one morning in September last, and found that he was collapsed and pulseless at the wrist. He had vomited a very large quantity of clotted blood; he had tarry motions passed under him involuntarily. Immediately ether was injected hypodermically, and a mixture of iron and ergot prescribed; the stomach rejected this. Pyrogallic acid was then given in grain doses at short intervals, and subsequently a small dose of morphia. In three hours the hæmatemesis was stayed and did not return. Melæna continued for several days; therefore he was ordered a mixture containing dialysed iron, liq. bismuthi, pyrogallic acid, morphia, in chloroform water. Under this he made daily progress, and left Rostrevor very much stronger than he had been for two years. Previously he had four or five similar attacks. His liver was abnormally small.

Pyrogallic acid appears to me to have the following advantages:—The dose is small; it does not disarrange the stomach in the way that the usual gallic or tannic acid mixtures do; it does not cause vomiting, as iron and ergot mixtures sometimes do; it is easily taken, and has no disagreeable after-taste. It appears to be more rapid and certain than any of the remedies mentioned above, and far surpasses the time-honoured acid infusion of roses, or pil. plumbi cum opio. It dissolves readily in water or in spirit. A spirit solution of definite strength affords a convenient and ready method of adminis-

tration. There is no reason why it should not be also used in the form of spray in hæmoptysis, but I have had no experience of its use in this way. The dose may also be increased according to circumstances.

In the *Irish Hospital Gazette* I recorded some cases of hæmoptysis, &c., in which liq. extract of ergot was used hypodermically with success. A combination of the ergot and pyrogallic acid will afford a very powerful means of arresting internal hæmorrhages.

Several standard works of reference have been examined without finding any record of the medicinal use of pyrogallic acid; but—"there is nothing new under the sun."

HYSTERO-EPILEPSY.

M. CHARCOT, in a paper read before the Société de Biologie, July 15 (*Progrès Médical*, July 27), shows that hystero-epilepsy, hysteria major, presents a type which, apart from secondary variations, remains always identically the same in its chief features. The attack can be divided into four periods preceded by an *aura*. The first stage is epileptoid, and does not differ from the comitial malady except in being susceptible of control by ovarian pressure or the electric current; it passes through a tonic state, to which succeed clonic spasms. After a temporary remission the period of *contortions* commences, at the time when the first hallucinations are produced. The third stage is that of *passionate attitudes*; the face expresses joy, terror, pleasure; the patient recalls her friends or remembers her enemies. In the last stage the patient, having come again to herself, is still under the influence of the temporary hallucinations; then little by little these latter phenomena disappear.—*London Medical Record*, Nov. 15, 1878.

PARACENTESIS ABDOMINIS BY GRADUAL DRAINAGE WITH A SINGLE FINE CANNULA.

DR. REGINALD SOUTHEY, who last year suggested the use of a fine silver cannula to drain œdematous limbs, has now adopted the same plan of treatment in cases of ascites, and with excellent results. In *The Lancet*, August, 1878, p. 176, a case is reported in which, during twenty-one hours, 11,400 cubic centimetres of clear fluid were evacuated by a fine capillary tube, inserted in the mesial line, midway between the umbilicus and pubes. In treatment, this mode of performing paracentesis leaves nothing to be desired; the *tuto, cito, et jucundè* are sufficiently fulfilled by it.—*London Medical Record*, Nov. 15, 1878.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Surgeon's Handbook on the Treatment of the Wounded in War.

A Prize Essay, by DR. FRIEDRICH ESMARCH, Professor of Surgery to the University of Kiel; Surgeon to the University Hospital, Kiel; Surgeon-General to the Prussian Army. Translated by H. H. CLUTTON, B.A., Cantab., F.R.C.S.; Resident Assistant Surgeon, St. Thomas' Hospital. London: Sampson Low, Marston, Searle & Rivington. 1878.

PROFESSOR ESMARCH'S Handbook on the Treatment of the Wounded in War has at once, on its issue from the press, arrested our attention. We have no doubt it will arrest the attention of every practical surgeon. The author's high reputation, familiar to all by his method of "bloodless operation" in surgery, will, if possible, be increased by the excellent book before us. He has set himself to a difficult task, strictly laid out before him by the terms of the prize which he has so fairly won, and has accomplished his work with consummate ability. Prize essays, as a rule, are dismal productions—written to order, against time, and often with but little more knowledge of the subject on the part of the author than enables him to disguise his ignorance. Professor Esmarch could not, even had he written a dreary essay, been placed in this category as an author, for his merit as a surgeon cannot be disputed. He has, however, succeeded in overcoming the difficulty of the prize essay, by his power of writing with great brevity and clearness, while his descriptions of details are mainly supplied by most graphic illustrations. The terms stipulated by the German Empress in offering the prize as a stimulus "to advance the interests of humanity, even in peace, under the symbol of the Red Cross," on the occasion of the Viennese Exhibition were, that the handbook was to show, "as shortly as possible, the present position of military surgery, by a description of the different methods of bandaging and dressing, as well as the surgical operations, as they occur on the battle-field, in such a manner that it

would become an indispensable companion and practical assistance for every military surgeon."

Books on bandaging and dressing, we have in abundance, and on surgical operations in peace and war many good and bad; but the difficulty of finding one complete, as a *vade-mecum* for the military surgeon, is clearly proved by the terms of the prize. But the extreme requirement of "an indispensable companion and practical assistance for every military surgeon," is such as none of the best books would meet. Professor Esmarch has attained this object as completely as we believe it possibly can be attained. His book will furnish, at a glance, the essentials of almost any surgical appliance or operation required in emergency, while the completeness with which the modern improvements of real utility are displayed will render the book of use not only to the young and inexperienced surgeon, but even to those of the most extended practice.

Coloured plates, representing the relations of the great vessels, are a novelty in a book of the size suitable as a *vade-mecum*, but their execution is excellent; and although they add to the size of the book, so as to render it rather large for the knapsack or great-coat pocket, they supply a want that many a surgeon must have felt, an exact reminder of anatomical detail not seen perhaps for years. The translator has done his work admirably; he has been as it were imbued with the plan of the author, and has avoided entirely the tendency of many medical translators of the present day to import foreign, and to many readers completely unintelligible, terms, by way of giving an advanced tone to their English. The printing of the text, the illustrations, and the paper of the book are perfect, but we think the binding might be improved: for a book that is intended to be knocked about a firmer grip of the pages is needed. Already with the short work our copy has got its pages begin to loosen, and some are actually out. We would suggest that it should be well bound and have a secure leather lapping for the edges.

Animal Chemistry; or, the relations of Chemistry to Physiology and Pathology. By CHARLES THOMAS KINGZETT, F.C.S.
London: Longmans, Green, & Co. 1878. 8vo. Pp. 494.

MR. KINGZETT gives us, in this work, the results of Thudichum's and his own elaborate researches into the chemistry of the brain. The information in reference to this subject is very copious, and

is based upon investigations of which a large proportion is of very recent origin. The copiousness which distinguishes the sections on the chemistry of the brain is not extended to the other subjects treated of in this work, with perhaps the exception of the albuminous principles. This devotion of undue space to a particular department is, however, very excusable in a case where, like the present, the author has thoroughly worked up that particular department himself. On the whole, however, the work cannot by any means be considered as a complete treatise on animal chemistry; for many important topics which would naturally come under that head are either very briefly noticed or altogether overlooked. Nothing is said of the chemical composition of the different forms of tumours; the fluid of ascites; the calcareous degeneration of tissues; the poison of the cobra di capello (recently investigated); of the cerebro-spinal fluid (concerning the presence of sugar in which much discussion has taken place), and many other important substances. The chemistry of the normal constituents of the body is much more exhaustively dealt with than that of the morbid substances occasionally found therein.

Mr. Kingzett opens his work with an interesting chapter on the beginning of the study of organic chemistry which arose with the celebrated Boerhaave. Chapter II. is devoted to life, from a chemical point of view, in which a terse but clear *résumé* of the vital processes maintained in the body is given. Chapter III. tells us to what extent chemistry can throw light upon the mysterious problems of life. In it the chemical principles found in animals are enumerated and classified, and the more important chemical changes which take place in the animal mechanism are described. It is shown that the body is not merely an apparatus for the disorganisation (or analysis) of matter, but that its synthetical powers are extensive and important. Chapter IV. treats of saliva. It is curious that the author does not refer to the absence of ptyalin from the saliva of infants and of the carnivora. In Chapters V. to VIII., inclusive, the chemistry of the gastric juice and of digestion is admirably described. The interesting observation is made, that in the walls of the stomach common salt is split up into soda and hydrochloric acid—the latter remaining in the gastric juice, and the former being transmitted to the liver, to be used in the formation of bile. Thudichum considers that before the soda enters the blood it plays a useful part in protecting the stomach against its own acid secretions. In certain cases the

corrosive action of the secretions is not counteracted, and the result gives rise to gastric ulcer and other morbid pathological processes.

A curious fact is referred to—namely, that in the bile of sea-fishes potassium prevails, whilst sodium abounds in that of fresh-water fishes.

It astonishes us to learn that "Playfair found in a sample of fæces which he examined as much as 15 per cent. of nitrogen and 45 per cent. of carbon." This makes fæces equal to guano in their proportions of nitrogen. We are pretty familiar with Playfair's works, and do not recollect ever having met with so surprising a statement in them.

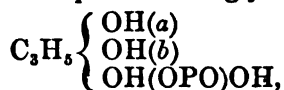
With respect to diabetes, Mr. Kingzett is of opinion that it is not due to any want of oxidising power in the blood. He cites an experiment made by Dupré, who found that all the fruit-sugar which he gave to a diabetic patient was fully oxidised, none being detected in the excretions. Bernard's observation—that an artificial diabetes can be induced in animals by irritation of the fourth ventricle of the brain by a needle—leads to the inference that the disease may be one having its origin in chemical or anatomical alterations in the brain or other nerve-centres. It must, indeed, be confessed that we know but little of the cause or causes of diabetes.

In Chapter IX., chyle, lymph, and blood are treated of, and much interesting information given, especially in relation to the coagulation of the blood. Chapter X. is devoted to "nutrition or alimentation," in which we find nothing new. In the following chapter, respiration and muscle oxidation are dealt with. Huxley, if correctly quoted by the author, is in error in stating that air inspired contains 3 parts of carbonic acid per 10,000, as against 470 parts in expired air. The purest air yet examined never contained so low a proportion of carbonic acid as 0.03 per cent. An interesting experiment made by Paul Bert is quoted, which shows that oxygen acts as a rapid poison when the arterial blood contains double the amount of oxygen, which is usually present in that fluid. On the other hand, the results of the recent experiments of Pflüger have shown that the internal combustion of oxygen goes on just in the same degree whether ordinary air or pure oxygen is inspired.

In Chapter XII. the subjects of animal heat, vital force, and muscular action are discussed very briefly, and with but few references to authorities. A chapter consisting of 18 pages disposes

of the chemistry of urine. The matter, though very brief, is, however, good, and the views with respect to the constitutional formula of uric acid are not to be met with in the existing works on animal chemistry. Chapter XIV. is very short (4 pages), and deals only with sweat.

Chapter XV. is the longest and most important in the work. It is replete with interesting facts. It gives a history of the work performed by every chemist who has helped to establish our present knowledge of that wonderful soft gray matter in "the dome of thought, the temple of the soul." The albuminoids in the brain present but little difference from those of other parts of the body; but the greater mass of them is insoluble in water. The phosphorised principles do not contain free phosphorus, as was at one time supposed. That element is, however, in a much lower state of oxidation than it exists in as phosphoric acid. These brain phosphorised substances may all be regarded as founded on a common type, and may be represented as glycerophosphoric acid:



in which the two hydroxyls—*a* and *b*—are substituted by the residues of fatty acids, whilst an ammonium base takes the place of one of the hydroxyls of the phosphoryl. These phosphorised bodies resemble fats and soaps; sometimes they act like acids; again they behave like bases, and even like alkaloids. Treated with strong sulphuric acid and sugar, they all exhibit a violet colour which soon fades out. The little that is known with respect to the changes produced in the brain by disease is referred to by the author. In locomotor ataxy a peculiar amyloid substance, colouring blue with iodine, is found in the marrow; it is probably a decomposition product of cerebrine.

Chapters XVI. and XVII. treat of the bones, brain, glands, milk, seminal fluid, mucus, pus, and other normal and morbid structures and secretions and products. In Chapters XVIII., XIX., and XX., albuminoids, animal carbohydrates, and fats, are considered; and in Chapter XXI., Pettenkofer's reactions (with sulphuric acid and sugar) are explained.

In Chapter XXII., fermentation and the germ theory of disease are dwelt upon at some length. The author discredits the statements which have been made in reference to the spread of typhoid and scarlet fevers by means of infected milk; but he does not, in

our opinion, by any means satisfactorily refute the arguments and facts which have been adduced by Ballard and others in support of the alleged spread of typhoid poison by the agency of milk.

Chapters on the physiological action of chemical substances or "character," and on how animal chemistry might be advanced, bring this most valuable work to a close.

In concluding our notice of Mr. Kingzett's book, we do but justice to the author in describing it as a most important addition to the library of medical chemistry. It is by no means, as we have already stated, a complete manual of animal chemistry, but it is rich in details of certain departments of that branch of knowledge, and contains much that will be new to most of its readers. In his style the author is not open to criticism; and his suggestions for the explorations of fields in the domain of science yet unexplored, will, we trust, induce many young and enthusiastic students to penetrate into those new lands full of "as yet undiscovered facts."

Contagious Diseases Acts. Replies of the Rev. E. P. Grant, Vicar of Portsmouth, to the Questions addressed by Convocation to the Clergy as to the Operation of the Contagious Diseases Acts. A Return to an Address of the House of Commons on the Motion of Mr. Stansfeld. 24th July, 1878.

MR. STANSFELD has unwittingly done good service to sanitation by his motion for this return, and the result has inflicted a serious blow on his unmeaning agitation for the repeal of the Contagious Diseases Acts. It will be remembered by some of our readers that Convocation addressed to the clergy of the Church of England a series of queries relative to the operation of the Contagious Diseases Acts. The Rev. E. P. Grant has probably more information concerning the working of these Acts from a sanitary, social, and moral point of view, than any other single individual. His position as Vicar of Portsmouth gives him opportunities of observation scarcely enjoyed by anyone else, and his well-known character as an enlightened and liberal-minded Christian minister adds great weight to his opinions, and precludes all doubt as to their truthfulness. Our space does not permit us to give the questions and answers *seriatim*, but we shall state their purport. The Rev. Mr. Grant states—(1) That the result of the Acts has been "most beneficial in diminishing prostitution"—which was

reduced in Portsmouth from 789 women on the register in 1865 to 476 in 1876—in diminishing the amount of disease; for in 1865 70 per cent. of the women examined, suffered from disease, while in 1876 the percentage was 4·84. There is every reason to believe that disease among men is reduced to less than one-half. (2) Mr. Grant attributes these results to the working of the Acts, and especially to the fortnightly examination of the women. (3) The number of brothels has decreased from 263 in 1865 to 133 in 1876. (4) There are no other public regulations which could have produced this result. (5) The number of persons living by prostitution and brothel-keeping has diminished. (6) The number of other resorts of prostitutes has diminished from 160 in 1865 to 115 in 1876. (7) The beneficial effect (a) upon the men (soldiers and sailors) is shown by their being in a better state of health. “As to their sinning more, because they think they can sin with impunity, I do not believe they ever think of it.” The beneficial effects (b) upon the women are shown by their number being reduced, their being much more cleanly and orderly in their appearance and conduct than formerly. “And,” says Mr. Grant, “notwithstanding rash statements made by various persons to the contrary, I have no hesitation, after nine years’ life in the High-street, in testifying to the marked improvement in the appearance and behaviour of the women of the town. Order and quiet have taken the place of disorder and noise, and I may say there is an utter absence of any such licence as was once too prevalent. No such instances of extreme degradation as formerly existed are now brought before the magistrates’ notice.” (8) He thinks the examinations tend to reclaim the fallen—some from dislike to the examination are led to give up their mode of life; and others by immediate admission into hospital, on the appearance of the disease, are early brought under good influence and have the opportunity of reforming. (9) The Acts deter very young girls from becoming prostitutes and being placed on the register. In reply to queries 10, 11, and 12, Mr. Grant says the effect on the population generally has been “good in every way.” He “most strongly, and on religious grounds most especially,” advocates the extension of the Acts. Should the Acts be repealed, Mr. Grant says, “I can imagine no steps being taken which will prevent such towns as Portsmouth from relapsing into the fearfully sad state of immorality in this respect, from which it has, for the last 10 years, been slowly but most perceptibly emerging.” (13) Mr. Grant details the measures which the

committee of the hospitals have taken—and successfully taken—for reforming the women. Thus, in 1866 there were 55 patients sent to penitentiaries, “most of whom the matron has reason to believe are doing well,” and 33 were sent home to their friends.” (14) In conclusion, Mr. Grant recommends further extension of provision for penitents, and that means should be taken to increase the public interest in providing means for reforming the fallen women.

We do not consider that the above abstract of, and quotations from, Mr. Grant's observations require to be enforced by us. They afford a simple but telling refutation of the views put forward by the agitators for the repeal of the Contagious Diseases Acts. There is another point, however, from which to view Mr. Grant's observations and suggestions. We know but little personally of what the High-street of Portsmouth is, or has been, but we and many of our readers do know what the streets of Dublin and of some other large towns in Ireland are at night, and we should be glad to see these measures which have so reformed Portsmouth enforced in Dublin, Belfast, and elsewhere.

T. W. GRIMSHAW, M.A., M.D.

Atlas of Diseases of the Membrana Tympani. By H. MACNAUGHTON JONES, M.D., F.R.C.S.I. London: J. & A. Churchill. 1878.

THIS work is, to a certain extent, supplementary to the author's Treatise on Aural Surgery, to which we drew the attention of the profession in the number of the Journal for June, 1878. It is another testimony to Dr. Jones' characteristic energy. In the preface the author makes known two very interesting facts in connexion with the production of the work—namely, that the artist to whom he owes the original drawings, made from patients at the Cork Ophthalmic and Aural Hospital, is Miss M. Boole, the distinguished daughter of a distinguished father; and, secondly, that the chromo-lithographic reproductions of these drawings are the first attempt of the kind in this country, having been executed by Messrs. Hanhart. We can only heartily congratulate Dr. Jones upon having had such admirable assistance. We do not believe it to be possible for the most experienced chromo-lithographer to produce a *facsimile* of an original drawing of so delicate a structure as the membrana tympani, and the fine pathological changes to

which it is liable; but the majority of these pictures are good representations of the conditions to which they refer. The drawings of perforations of the membrane on Plate 2 are admirable. Those on Plate 1, representing exostosis in the external meatus, inflammation of the membrane, &c., are also very good; but we must take exception to Fig. 6—the normal membrane—on this plate, as being much too white. There are altogether fifty-four pictures on six plates of the various diseased conditions of the membrana tympani and external meatus. These pictures are calculated to be a very great aid to anyone endeavouring to get some knowledge of diseases of the ear, and we think Dr. Jones is deserving of thanks for having placed such a work within reach. There are two drawings of eczema of the auricle and its results, and four drawings of othæmatoma. The explanatory letterpress is full and satisfactory. We would draw attention to the following passage in connexion with Fig. 54. (membrane of child suffering from otorrhœa) to show the practical bearing of the work and its importance to the general medical practitioner:—

“I determined, on seeing its bulging and inflamed look, to puncture, and expressed my anxiety as to the danger of some secretion being detained in the tympanum. The child was to have been operated on the following day, but the friends neglected to bring her. I afterwards learned that she died comatose, with convulsions. This was just one of those cases where close attention to the ear and incision of the membrane might have saved life. In children especially this brain-mischief is apt to creep on unperceived. The rapidity with which cerebral complications make their appearance, in the midst of perfect health, in cases of long standing ear disease, should always be borne in mind. Increase of pain and deafness, with constitutional symptoms—such as rigors, high temperature, furred tongue, rapid pulse—mark the onset of the mischief; and as perhaps the discharge from the ear has ceased, attention is diverted from this organ. But often, notwithstanding every effort, the patient rapidly succumbs. The pain increases in the ear, and radiates over the entire head. The pulse falls, the bowel is costive; obstinate vomiting may ensue. The mind generally remains clear, but finally the patient sinks comatose or convulsed. In treating such cases there must be no delay or tampering. Prompt and energetic action is required—thorough exploration of the meatus, removal of all discharge, and any polypus, if present, instantly removed; repeated fomentation, the application of leeches, free incision of the membrane, if we suspect pent-up secretion, and the same over the mastoid process, or the use of the trephine if there be any bulging of the inflamed part,

from which we may suspect the presence of purulent matter in the mastoid cells. On these occasions I have seen life saved by a free incision made down to the mastoid process, the incision being followed by the escape of pus and dead bone."

Forms for the taking of Throat and Aural Cases, accompanied by Drawings and Outlines; with Explanatory Notes, &c. By LENNOX BROWNE, F.R.C.S. Ed., &c. London: Baillière, Tindall, & Cox. 1878.

PROBABLY in no direction is progress more to be desired in our hospitals than in the attainment of a more exact and complete method of clinical analysis—whether at the bedside or in the extern-patient room. In this more perfect system of symptomatology and differential diagnosis, we are completely outstripped by our Continental contemporaries. Accuracy in the codification of signs, probable causes and symptoms, either physical or functional—the careful separation of phenomena purely subjective in character from those which are objective—would save us from much of the bungling uncertainty which now detracts from our repute as diagnosticians. The study of special branches and the concentration necessitated in the elucidation of abnormal conditions of individual organs—by cultivating a more exact power of observation of physical phenomena and their consequences, both locally and generally—is tending, happily, to save the young clinical teachers from the too familiar generalisations of the present day.

These tables and forms of Mr. Lennox Browne are complete in their way, forcing on the surgeon or his assistant a methodical system of taking cases, and proving to him the value of proceeding with critical caution on each step before arriving at a conclusion. At the first glance the forms do appear unnecessarily cumbersome and diffuse; but for use in the private study of the special surgeon, or the special department of a general hospital, some such form must be found indispensable by those who desire to have a permanent record of the condition of a case at the first visit, as well as a clear history of its antecedents and progress. The outline diagrams will be found specially useful, requiring but a slight degree of graphic power on the part of the surgeon to sketch on them with accuracy the diseased state. The hints on the examination of an aural case are brief and practical. A differential table of signs and symptoms of the principal laryngeal affections is appended.

Though it is apparent that such forms are too elaborate for use in every simple case of throat or ear affection, yet we welcome their appearance as a true index of the care to be bestowed on every case of interest, where we desire an authentic and valuable record for future reference.

The Contagious Diseases (Animals) Act, 1878 (41 & 42 Vict., cap. 74). Dublin: John Falconer. 1878. Pp. 138.

IN an enterprising spirit, which is most commendable, Mr. Falconer has lately published the "Contagious Diseases (Animals) Act, 1878," with the Schedules, Orders in Council, and Forms relating to it. This edition of the Act is uniform with that of the "Public Health (Ireland) Act, 1878," of which we recently expressed a deservedly favourable opinion in the pages of this Journal. As in the case of the Public Health Statute, Mr. Falconer illustrates and explains the Contagious Diseases (Animals) Act by a very copious Index, in which reference is made not only to the pages of the present edition, but also to the sections of the Act wherein the various provisions are to be found. The labour of consulting the statute is thus reduced to a minimum, while the reader is made familiar with its provisions. A number of pages of blank paper for Notes is bound up with, and enhances the value of, the present edition of the Act.

It may not be amiss to direct the attention of the Medical Officers of Health throughout Ireland to what is really a sanitary enactment "for making better provision respecting Contagious and Infectious Diseases of Cattle and other Animals; and for other purposes." The Act received the Royal Assent on August 16, 1878, and came into operation on October 1. It is divided into four parts—the first being "general;" the second applying to England; the third to Scotland; and the fourth to Ireland. Parts III. & IV. are practically Part II. with the necessary alterations or additions required in the case of Scotland and of Ireland respectively.

Section 34 has such a direct bearing on the public health that we transcribe it at length:—

"34. The Privy Council may from time to time make such general or special orders as they think fit, subject and according to the provisions of this Act, for the following purposes, or any of them:

"(i.) For the registration with the local authority of all persons carrying on the trade of cowkeepers, dairymen, or purveyors of milk.

"(ii.) For the inspection of cattle in dairies, and for prescribing and regulating the lighting, ventilation, cleansing, drainage, and water supply of dairies and cow-sheds in the occupation of persons following the trade of cowkeepers or dairymen.

"(iii.) For securing the cleanliness of milk-stores, milk-shops, and of milk-vessels used for containing milk for sale by such persons.

"(iv.) For prescribing precautions to be taken for protecting milk against infection or contamination.

"(v.) For authorising a local authority to make regulations for the purposes aforesaid, or any of them, subject to such conditions, if any, as the Privy Council prescribe."

In concluding this notice, we must congratulate Mr. Falconer on the promptitude with which he has been able to reprint two such voluminous statutes as the Public Health Act and the Contagious Diseases (Animals) Act, and on the neatness and accuracy with which the task has been accomplished.

An Essay on the Pathology of the Œsophagus. By JOHN F. KNOTT. Pp. 225. Dublin: Fannin and Co. 1878.

THE Essay which we have before us received the Gold Medal of the Dublin Pathological Society at the close of the session 1876-77. It is, therefore, the work of a student, and consequently written during the few hours of leisure which the urgent calls of coming examinations leave at his disposal. We cannot but congratulate the author on the result. Though necessarily devoid of original research, the essay shows that Mr. Knott has spared neither time nor trouble in making himself master of his subject and in collecting into a monographic form the writings and experiences of those who have paid special attention to œsophageal affections. The difficulty of obtaining information, even to a slight degree, on these diseases, renders Mr. Knott's book the more valuable. The Pathological Society may congratulate itself upon the fact that the medal which it offered for competition has produced a work which would do credit to a more advanced member of the profession. We much regret, however, that the book, which is well bound and printed in a most readable form, should be defaced by very many typographical errors.

PART III.

HALF-YEARLY REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.*

By RINGROSE ATKINS, M.A., M.D., &c.; Resident Medical Superintendent, District Lunatic Asylum, Waterford.

I.—ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.

The Nerves of the Dura Mater.—The following are the conclusions arrived at by M. Duret in a communication on this subject presented to the Soc. de Biologie:—1. The excitation of the nerves of the dura mater produces by reflex action convulsive movements of the corresponding side of the body, and sometimes also of the opposite side in the face, the trunk, and the members. These facts were already published by M. Bochefontaine. M. Duret confirmed the observations of his predecessor; but he noticed further that if we inject through the hole in the skull a small quantity of coagulable or irritant substance incapable of acting by compression, we observe a veritable tetanic contraction—a pleurosthotonos of the same side of the body. 2. The nerves of the dura mater may act by reflex action upon the pupils, dilating them (a fact already noticed by M. Bochefontaine). 3. Their *brusque* excitation may produce a veritable respiratory syncope, and death from contraction of the diaphragm. 4. They act also by reflex action on the vasomotor nerves of the eye and of the brain of the same side, and this action is rapid and powerful. 5. By the same mechanism they may augment the tension of the cerebro-spinal fluid, and that of the general circulation. 6. It is probable also that they act on the secretions, since in the animals subjected to experiment it is not uncommon to see the occurrence of salivation, micturition, and involuntary dejections.

* The author of this Report, desirous that no contribution to the subject of Nervous and Mental Disease should remain unnoticed, will be glad to receive any publications which treat of it. If sent to the correspondents of the Journal, they will be forwarded.

In a clinical point of view, M. Duret calls attention to the importance of the observations of M. Bochefontaine and himself. Inflammation of the dura mater, as he had shown on a dog in which he had injected iodine under the skull, reveals itself by convulsions, and often by contractures of the *corresponding side*, and sometimes on the opposite side. It will be henceforth possible, therefore, for the surgeon to ascertain whether a bony splinter acts upon the dura mater or on the nervous substance of the hemispheres; for if the dura mater is injured or irritated, the convulsions or contracture follow on the same side, while if they were produced by encephalitis they would be on the opposite side. The state of the pupil, of the globe of the eye, of the respiration and circulation, &c., will permit of the assurance of the diagnosis. Guided by these signs, Dr. Blain, of Bernay, suspected in a wounded man suffering from fracture of the skull with depression, a splinter irritating the dura mater. He performed the operation of trephining, and saved the patient (*Am. Jour. Nerv. and Ment. Dis.*).

The course of the Fibres in the Nerve Centres.—Flechsig (*Centralblatt*, No. 3) publishes the following as the results of his more recent researches:—1. Each pyramid of the medulla, without being interrupted in ganglion cells, continues through the pons, crus, and inner capsule, into the centrum semiovale of the corresponding hemisphere, and preferably into the tract corresponding to the contralateral convolutions. 2. The continuation of the pyramid fibres forms in the crus and inner capsule a compact cord, the situation and limits of which are established; in the external capsule it generally has an elliptical section, and passes between the lenticular nucleus and the middle third of the optic thalamus. 3. The tracing of the formation of the medullary sheath furnishes a better topography of the fibres of the inner capsule than was heretofore attainable. 4. In the cerebrum also the development, history, and "secondary" degenerations afford accordant results as to the course of the fibres.

Nothnagel "division of Internal Capsule."—Nothnagel (*Virchow's Archiv*, 71 Band, Heft III.) treats of the results produced by division of the internal capsule in rabbits, the part divided being the anterior, lying between lenticular and caudate nuclei.

Class A.—Both lenticular nuclei were previously destroyed by injection with chromic acid. When the characteristic symptoms—absence of all spontaneous movements—were developed, division of

the two capsules was performed with a protected knife. The result was total paralysis of the anterior members. According to the experiments, there seems to have been also anæsthesia of these parts, but Nothnagel does not refer to it in his remarks.

Class B.—Simple division of both Internal Capsules.—With the closest scrutiny Nothnagel could not detect any difference whatever between the animals operated on and uninjured rabbits.

Division of one capsule alone gave rise to similar symptoms as the destruction of the corpus striatum, though of less intensity—viz., distortion of the spinal column, with the concavity turned towards the side of the lesion, and deviation of the extremities also towards the injured side.

Nothnagel, therefore, concludes that motor tracts pass through both the corpus striatum and the internal capsule, and that destruction of either of these parts alone does not suffice to produce any marked paralysis in rabbits (*Am. Jour. Nerv. and Ment. Dis.*).

The Motor Centres for the Members.—At the session of the Acad. de Médecine, Paris, Oct. 23, 1877, M. Bourdon read a paper entitled "Clinical Researches on the Motor Centres for the Members." M. Gosselin, in his report on the memoirs of MM. Lucas-Champonnière, Proust, and Terrilon, having raised the question of cerebral localisation, M. Bourdon undertook some investigations on the subject with the idea of testing, by clinical observation, the results of experiments made upon animals. His study was directed especially to the motor centres for the limbs. Having observed a very clear and precise case of brachial monoplegia, he compared it with all others as apparently conclusive to him, many of the cases never having been published. His first observation was that of an old man of a very deteriorated constitution, who, after a simple attack of vertigo, was suddenly affected with paralysis, limited to the muscles of the forearm and hand of the right side, with preservation of sensibility. Speech was quickly recovered, but the partial paralysis of the superior member persisted until death. At the autopsy there was found a very superficial small hæmorrhagic *foyer* in the upper part of the ascending frontal convolution of the left hemisphere, and in the vicinity no lesion of the opto-striate bodies. In a second case, also unpublished, communicated by M. Verneuil, a mason, following a fall which produced fracture of the skull, presented a paralysis of both arms, and at the autopsy there were found two foyers of meningo-encephalitis—one on the upper third of the left ascending frontal

convolution, and the other on the right ascending parietal convolution. The author next reported a dozen observations of brachial monoplegia described by different writers, and all accompanied with autopsies. In analysing the nervous symptoms presented by the patients, there are found special characteristics of paralysis of cortical origin—disassociation, progressive march, successive appearance, instability of the paralytic phenomena, these always leaving the sensibility involved, and almost never being accompanied with loss of consciousness. As to the very various anatomical lesions, they were all located in the cortical motor region, but instead of occupying the upper third of the ascending frontal convolution, or the superior two-thirds of the ascending parietal—that is, in the circumscribed region in which M. Carville and Duret have localised the centre for the arm in man from their experiments on animals—and in place of being situated in the middle third of the ascending frontal, as it should be, according to the localisation proposed by MM. Charcot and Pitres in their recent memoir, these lesions were disseminated throughout the whole height of these convolutions and in their neighbourhood. But—and this point is worthy of note—whenever there was paralysis of the face with that of the arms (six observations), a lesion existed in the middle or lower part of the ascending frontal convolution—that is, more or less near the second frontal convolution, where is generally accorded the motor centre for the face. The region occupied by all these lesions, though rather extensive, appeared to constitute the true motor centre for the arm—only in getting these observations of cortical hemiplegia, M. Bourdon recognised that, in the majority of cases, the anatomical alteration occupied the superior third of the ascending frontal, and the upper two-thirds of the ascending parietal convolutions, conformably to the localisation adopted by MM. Charcot and Pitres for the combined movements of the arm and leg; but in a good number of cases the autopsy revealed lesions having the same locality in cases only of brachial monoplegia. The author then engages in the investigations whether, independently of its situation, certain characters of the anatomical alteration may not account for the difference in the paralytic phenomena. Contrary to what might be supposed, the facts did not show him that the extension of the paralysis from the arm to the leg had any relation to any increase of extent of the lesion either in surface or depth. The study of brachial monoplegias not having given as satisfactory a result as he had anticipated, M. Bourdon sought whether

amputations of the arm, with their necessarily very simple encephalic lesions, would not be better suited than cerebral affections to reveal the exact situation of the motor centres. If it be true—as from certain facts of arrest of development we might be led to think—that the default of action of a member causes, after a while, an atrophy of that part of the brain which controls its movements, the author ought to be able to find, in cases of old amputations, an atrophic lesion of the surface of the brain always occupying the same point. Unfortunately he was able to collect but two observations followed by autopsies—one by M. Chuquet, and the other by M. de Boyer, both *internes* of the hospitals. Nevertheless, in both these cases there was found an atrophy occupying the upper part of the two ascending convolutions—that is to say, over a portion of the region occupied by the lesions of brachial monoplegias, and this augments the value of those lesions as regards localisation. M. Bourdon treats also of the movements of the lower limbs, for the purpose of finding whether, in man, there really exists a motor centre distinct from that of the arm, as experiments on animals permit us to suppose to be the case; and he seeks to support this supposition by clinical facts of paralysis limited to one limb. But those cases which have been recorded by earlier authors are either not accompanied with accounts of the autopsies, or the location of the lesion is barely indicated. In lack of sufficiently conclusive cases of monoplegia, the author has collected three cases of amputation, and one of arrest of development of the lower limb. In the three first observed by M. Luys there was found an atrophy located in the upper part of the ascending frontal convolution; in the case of arrest of development, published by M. Landouzy, the atrophy occupied the upper portion of the ascending parietal convolution. After giving his conclusions, readily deduced from the preceding facts, M. Bourdon closes with the following practical considerations:—In consequence of the considerable extent of the motor centre for the arm, a paralysis limited to this member does not indicate with sufficient precision the part of the cranium to which the trephine should be applied. Nevertheless, if there be added to the brachial monoplegia a paralysis of the lower face, or an aphasia, we have, according to M. Bourdon, a great chance of meeting the lesion by operating over the middle portion of the Rolandian line, as recommended by M. Lucas-Champonnière. As to the counsel given by that surgeon to apply the trephine near the summit of the fissure of Rolando in case of paralysis of the lower member, the

observations cited tend to prove that it is well founded; but the case is otherwise when he advises operation behind the fissure, since the facts demonstrate that the anatomical alteration is more often anterior than posterior to the line which serves as a landmark to the surgeon (*Am. Jour. of Nerv. and Ment. Dis.*).

The Comparative Structure of the Cortex Cerebri.—Mr. Bevan Lewis, of the West Riding Asylum, contributes to the April number of *Brain* an elaborate article on this subject, in which considerable advances have been made to our knowledge by the recent researches of Herbert Major. Speaking of the types of structural lamination, Mr. Lewis says:—"Of the five distinct plans upon which the architecture of the cortex cerebri is framed, according to Meynert, that lamination stated to be characteristic of the vault has been the subject of some discussion. Meynert distinctly affirms that this formation is five, laminated, in which statement he is supported by Mierzejewski and Betz. Baillarger adopts a different view regarding the lamination typical of this region as consisting of six layers. Dr. Major agrees with these views of Baillarger, and extends the limits of the six laminated cortex to the central lobe or insula. Our researches, however, demonstrate that each of the disputants is correct only in a limited sense. There is a five and a six laminated cortex, each typical of a certain definite area; but whilst the six-layered formation is found extensively spread over the convolutions of the parietal and other regions, the *five laminated* type is pre-eminently characteristic of the motor area of the brain. Another highly important feature of this region is the presence of large ganglionic cells, which, under the title of 'giant cells,' were made the subject of special attention by Professor Betz over three years ago. Our examinations tend to convince us that these cells have a motor significance, and that in their configuration, size, and distribution, they present us with a thoroughly unique formation; these great elements are constituents of the fourth cortical layer; and to their consideration special attention is given in what follows, but which want of space prevents me here reproducing."

II.—PATHOLOGY OF THE NERVOUS SYSTEM, AND MORBID ANATOMY.

An Early Symptom of Tabes Dorsalis (Westphal, *Berliner klin. Wochenschr.*, 1878, No. 1).—The absence of the "knee or lower thigh symptom," discovered by the author in 1871, is, according

to his latest careful observations, characteristic of tabes, and a very valuable symptom in the earliest stages of the disorder. He has almost invariably observed that failure of this phenomenon before the development of ataxia and the decrease of sensibility, and in many such cases where, from its failure in conjunction with vague pains indistinguishable from neuralgia, he had diagnosed locomotor ataxia—the diagnosis was confirmed by the ophthalmoscopic examination—advanced white atrophy of the optic nerve, and variations of the pupil. A combination of occasional pains in the lower extremities, together with failure of the knee sinew reflex, appears to indicate incipient locomotor ataxy, but the occurrence of such pains, with the continuance of the knee reflex, is not so certain an indication that these pains are not tabetic. The author lays special stress on this symptom in certain cases of hypochondriasis, in which, as in tabes, there are troublesome pains, vesical weakness, impotence, &c., and which are in such cases distinguished with difficulty from incipient tabes. If the knee phenomenon does not appear in such cases, then we may infer that the trouble is locomotor ataxy. Apart from its physiological, pathological, diagnostic, and prognostic importance, this symptom may be of significance as regards the treatment, since it enables us to recognise in its earliest stages a disease which, in its latest development, is almost incurable, and therefore may help us to combat it more successfully. [In order to elicit this “sinew” or “tendon reflex,” as it is called, the patient or person experimented on must be placed sitting, with one leg crossed lightly over the other; if now the ligamentum patellæ be smartly struck below the knee-cap, the extensor muscles in front of the thigh suddenly contract, and consequently the leg is as suddenly kicked upwards, this constituting the movement, the absence of which Prof. Westphal indicates as of value in the diagnosis of the earliest stages of locomotor ataxy.—*Rep.*]

Dr. Buzzard, in a paper in *Brain* “on a prolonged first stage” of the disease in question, states that “in all confirmed cases of tabes in which I have used this test since I became acquainted with Dr. Westphal’s suggestion, I have found, as he has done, that the knee phenomenon was absent.” During a discussion on a paper by Dr. Julius Althaus, on “Lateral and Posterior Sclerosis,” in the medical section at the meeting of the British Medical Association in Bath, at which I happened to be present, this symptom was brought under notice. Dr. W. R. Gowers said he had seen three cases in which the tendon reflex was not absent, and out of some

three hundred healthy persons on whom he had experimented, it was absent in several. Dr. Sawyer, of Birmingham, said he had seen cases in which the sinew reflex was quite normal, and Dr. Clifford Allbutt had also seen a far advanced case in which it was preserved. Dr. Grainger Stewart mentioned that no case had occurred in Edinburgh where it was present. While this difference of opinion indicates that the test cannot be looked upon as infallible, yet there can be no doubt of the generally practical value of Westphal's suggestion.

Pathological Lesions versus Motor Centres.—Dr. Maragliano has a paper in the *Rivista Sperimentale di Freniatria* on the localisation of motor functions in the cortex cerebri, studied from the clinical side, which has been abstracted in *Brain* by Dr. W. W. Ireland. Maragliano considers that the views of Hitzig and Ferrier are substantially the same, as they agree in the relative position of the motor centres. He has collected ninety-seven cases of cerebral lesions, with the view to observe the correspondence of symptoms during life with the parts of the brain injured. These cases are collected from French, English, German, and Italian sources. He finds that they agree in a wonderful manner, especially with the observations of Ferrier, who gives greater extension than Hitzig to the portion of the cortex excitable to electricity.

Charcot and Pitres, basing their deductions on a smaller number of observations—forty-one in number—concluded that derangement of the movements of the superior extremity corresponded with a lesion of the middle third of the ascending frontal gyrus; but Dr. Maragliano thinks that we cannot thus limit the motor centre of the arms, which must cover the two upper thirds of the entire motor zone, for he finds paralysis and convulsions confined to the arms, corresponding with lesions disseminated over this whole tract. He, however, agrees with Bourdon (*vide ante*), who has made a collection of twenty cases, among which are paralysis or arrested development of a single limb, and amputations corresponding with atrophy of the cerebral cortex.

The following are Dr. Maragliano's conclusions:—

1. That alterations in the cortex of the cerebrum may cause alterations in the motor functions of the body.
2. That this influence on the motor functions of the body comes exclusively from the frontal and parietal lobes.
3. That lesions of the frontal convolutions are more frequent than those of the parietal.

4. That in the frontal lobe the faculty of influencing the motor functions is confined to the ascending frontal, and to the posterior part of the first, second, and third frontal.

5. That of all the frontal convolutions the ascending gyrus is oftenest injured.

6. That in the parietal lobe the faculty of influencing the motor functions resides especially in the ascending parietal.

7. And that lesions are found in the two ascending or median gyri mentioned, in equal proportions.

8. That in the motor derangements confined to the upper extremity the lesion may be found in the two upper thirds of the motor zone.

9. That the motor derangements of both limbs correspond to lesions in the two upper thirds of the two ascending or median gyri.

10. That when pronounced disturbance of the muscles of the eye is associated with motor derangements of one or both limbs, we constantly find a lesion in the inferior third of the ascending frontal gyrus.

11. That motor derangements of the superior palpebral muscle seem to correspond with lesions of the inferior parietal gyrus.

12. That the phenomena of excitation, cramps, convulsions, and other epileptiform attacks, correspond indistinctly to lesions in the ascending frontal and parietal convolutions, and to points immediately contiguous.

The Brain in Congenital Absence of the Left Hand.—In the current number of *Brain* Dr. W. R. Gowers records, with an illustration, the condition of the brain in a case of this defective development. The two hemispheres were nearly of the same size, but little difference existed between the frontal convolutions on each side; between the two ascending parietal convolutions, however, a marked difference lay. "At their origin at the longitudinal fissure for the first inch of their extent they were nearly equal in size, and continued nearly equal for the upper inch and a half. In the next (middle) two inches there was a very marked difference, the right being a narrow single convolution, and the left broad and depressed by a slight secondary sulcus. The measurements of a transverse section of the two convolutions at the part indicated were the right .35 inch, and the left .65 inch. The lowest extremities of the two convolutions were equal in size. No disparity in size between the convolutions of the rest of the parietal or occipital lobes could be

detected." The central ganglia were equal in size; no histological differences could be detected in the unequal parietal convolutions. Dr. Gowers' remarks that the facts of this case are in striking support of experimental results, the diminution in size in the ascending parietal convolution occupying precisely the area, stimulation of which, according to the experiments of Ferrier upon monkeys, causes movements of the opposite hand; he adds that he is unaware that the brain has been examined in any quite similar case.

Three Cases of Brain Softening located in Left Ascending Frontal Convolution or the Anterior Marginal. By Dr. Ugo Palmieri Siena; abstracted in *Brain* by Dr. Rabagliati, with three plates. Case I.—Male; recurrent insanity; sudden paralysis of right arm; partial paralysis of right leg and angle of mouth; improvement; death a month after. *Necropsy*.—Atrophy and softening at two points of middle third of left ascending frontal convolution, extending into central part of hemisphere as far as the centrum ovale of Vieussens; zone of softening a centimetre and a half in diameter. Case II.—Female, aged thirty-seven, imbecile, epileptic, hemiplegic; right arm paralysed; hand powerless, strongly flexed on forearm, and pronated; forearm, flexed on arm, and capable of very little movement; arm capable of some movement backwards and forwards; right leg incompletely paralysed; sensibility to pain unimpaired; death from rapid pneumonia. *Necropsy*.—Whole brain atrophied; left hemisphere smaller than right; left frontal ascending, specially atrophied, $1\frac{1}{2}$ millimetres in thickness; similar, but smaller, patch of atrophy on right hemisphere. Case III.—Female, aged fifty, sympathetic insanity, acute maniacal paroxysm, followed by dysphasia, and afterwards paralysis of face and right arm, the hand being bent on the forearm, and the latter on the arm; death from exhaustion. *Necropsy*.—Strong adhesions of membranes to cortex over left fronto-parietal convolutions; softening of cortex beneath; similar softening for the space of two centimetres in sphenoidal lobe; chief seat of softening, middle third of left ascending frontal convolution.

Hemianæsthesia.—F. Müller Graz (*Berl. klin. Wochenschr.*, 1878, No. 20), abstracted in *Brain* by W. J. Dodds, M.B., D.Sc.—This paper contains a very carefully described case of hemianæsthesia. The patient was a man, aged sixty-one, suffering from chronic alcoholism and aortic insufficiency. About seven weeks before admission into hospital he complained of headache, constantly increasing in severity, and of feelings of numbness, tingling, and

creeping in his right arm. In a few days these symptoms were succeeded by an apoplectic seizure, with right hemiplegia and loss of speech. Speech was regained in eight days, and in fourteen days the patient was so far recovered that he could leave his room and attend to his business; he only felt a weakness in the hand and the foot of the right side. He was admitted into hospital, complaining of headache and cough. An examination of the nervous system revealed slight right hemiparesis; the movements on this side were somewhat weak, but were regular and well coordinated. On walking with the eyes closed there were no evidences of ataxia; there was complete right hemianæsthesia. The patient was not aware of the loss of sensation, and was quite surprised at experiencing no pain when pricked with a pin. The hemianæsthesia was strictly limited by the median line; the bones had lost their sensibility. Pressure over the liver was slightly felt. Tickling and pinching of the upper and lower extremities were followed by reflex movements; tickling of the right external auditory meatus was without effect. The conjunctiva and cornea, and the mucous membranes of the cheek, tongue, soft palate, uvula, nostrils, glans penis, and anus, were quite anæsthetic. There was a total loss of the muscular sense at the right side. Patient could not distinguish between objects of different weight; he was ignorant of the position of his limbs at any moment, and if told to move a limb, the movement being forcibly prevented, he would make an effort for a time, and then cease, thinking the movement had been accomplished. The sense of temperature was lost at the right side. There was also complete amblyopia of the right eye; the ophthalmoscope revealed nothing in the fundus that would account for this. The left eye was quite normal, and showed no traces of hemiopia. Hearing was so far affected on the right side that the ticking of a watch was only heard when the watch was in contact with the ear; at the left side it was heard with the watch at a distance of 50 cm. Smell was completely lost on the right side, and taste was greatly impaired over the entire right half of the tongue. The organs of sense on the left side were quite normal. Examination with the faradaic current showed complete loss of electro-cutaneous and electro-muscular sensibility; the minimal strength of current requisite to produce contraction was the same on both sides. The opening and closing shocks of a Stöhrer's continuous battery of 30 cells caused very powerful contractions, but no pain. On applying the negative pole to the upper eyelid

(the lids being closed), and the positive pole to the cervical vertebræ, the optical appearances known as Purkinje's figures were produced on opening and closing the current—in the right eye with 6 cells (Stöhrer), in the left eye with as few as 2 cells. On stimulating the right border of the tongue there were muscular contractions, but no metallic taste. There is little to note in the further course of the case; the hemiparesis almost disappeared, the hemianæsthesia remaining as marked as ever. The patient died three weeks after admission of infarction of the right lung. On *post mortem* examination a very sharply circumscribed focus of softening, of the size of a pea, was found involving the apex of the third division (posterior point of external segment) of the lenticular nucleus of the corpus striatum and the adjacent white matter. Very careful examination failed to discover any other lesion.

In discussing the case, the author quotes Pierret's statement that the hinder part of the internal capsule or the adjoining part of the corona radiata was found affected in thirteen out of fifteen cases of hemianæsthesia in which an autopsy had been made. He further points out that the view here taken of the pathology of hemianæsthesia is in harmony with the results arrived at by anatomists and physiologists, for Veyssière has shown by his experiments on dogs that hemianæsthesia is very specially associated with lesions of the hinder and upper part of the internal capsule; and Meynert has described in the same part of the capsule a bundle of sensory fibres proceeding from the occipital and temporal lobes directly downwards to the crus. The author attributes the hemiparesis to the implication of the lenticular nucleus. Lastly, he recognises the complete identity of the symptomatology of hysterical hemianæsthesia and the hemianæsthesia produced by foci of hæmorrhage or softening, the former being due to a functional, the latter to an organic affection of the posterior part of the internal capsule.

Cerebral Intra-ventricular Hæmorrhages.—M. Gallopani (*Thèse de Paris*, 1877; *Annales Méd. Psychologiques*, Nov., 1877) gives the following conclusions as the result of his study, especially in regard to the symptoms of convulsion and contracture which are known to follow this condition:—

Hæmorrhages into the optic thalami are those which most frequently burst into the ventricles.

Convulsive phenomena occur in more than a half of the cases of ventricular hæmorrhage.

There is no causal relation between hæmorrhage into the ventricles and the convulsive phenomena.

The appearance of the latter only indicates the more or less intimate relations of the hæmorrhage with the excito-motor centres.

Finally, in the great majority of cases of intra-ventricular hæmorrhages, accompanied with convulsions, these latter are due to an irritation of the crura cerebri—an irritation which is often a direct one.

Differential Diagnosis of Disseminated Cerebro-spinal Affections. Charcot, *Gaz. des Hôpitaux*, No. 15, Feb. 5, 1878.—“To facilitate the diagnosis of the four principal groups of multilocular cerebro-spinal affections, I have thought it well to put in tabular form the various symptoms of each, indicating the relative frequency of the cardinal symptoms and their value. In the following table the *italics* designate those symptoms to which I attach the most importance.

“The other symptoms are as indicated, but less frequent. For example, spasmodic paraplegia and muscular atrophy in multilocular sclerosis, vesical paresis in general paralysis, the embarrassment of speech in locomotor ataxy, &c.

“We should be guided principally by the characteristic symptoms, so to speak. Thus, if we observe in a patient ataxia with nystagmus, we must look for disseminated sclerosis, and not for locomotor ataxy, since nystagmus is a valuable symptom of multilocular sclerosis. Also, spasmodic paraplegia (recognised by the continuous movements of trepidation produced by a tap on the sole of the foot) is much more characteristic of syphilitic disorder than of multilocular sclerosis, especially if it is accompanied by fixed pain, which always indicates a phenomenon of compression—*e.g.*, the paraplegia consecutive to Pott's disease.

“It is unnecessary to add that this table is intended to show clearly only what we think to be the present state of our knowledge, but that it may be modified in some details by future discoveries. Nevertheless, in its principal points it appears to me only to contain actual facts acquired by medical experience.”

Disseminated Cerebro-Spinal Affections.

Tabetic Series	Multilocular Series	Disseminated Syphilitic Disease	General Paralysis
CEREBRAL SYMPTOMS. { <ul style="list-style-type: none"> Epileptiform Apoplectic Attacks Vertigoes Intellectual Disorders Diplopia Strabismus Amaurosis Inequality of Pupils Facial Anæsthesia Deafness Aural Vertigo Laryngismus Embarrassment of Speech 	{ <ul style="list-style-type: none"> <i>Epileptiform</i> <i>Apoplectic Attacks</i> <i>Vertigoes</i> <i>Intellectual Disorders</i> <i>Diplopia</i> <i>Nystagmus</i> Amblyopia White Atrophy <i>Embarrassment of Speech</i> <i>Troubles of Deglutition</i> Paralysis of Pneumogastrics 	{ <ul style="list-style-type: none"> Epileptiform Attacks <i>Vertigoes</i> Intellectual Disorders <i>Amblyopia</i> <i>Optic Neuritis</i> <i>Diplopia</i> <i>Headache</i> <i>Fixed Pain</i> Total Facial Paralysis 	{ <ul style="list-style-type: none"> <i>Epileptiform</i> <i>Apoplectic Attacks</i> <i>Vertigoes</i> <i>Intellectual Disorders</i> Diplopia Amblyopia <i>Inequality of the Pupils</i> Headache <i>Embarrassment of Speech</i>
VISCERAL SYMPTOMS. { <ul style="list-style-type: none"> <i>Gastric Crises</i> <i>Nephritic Crises</i> <i>Vesical Crises</i> Paresis of the Bladder Cystitis 	{ <ul style="list-style-type: none"> <i>Gastric Crises</i> 	{ <ul style="list-style-type: none"> Crises, Non-nervous 	{ <ul style="list-style-type: none"> Paresis of Bladder
SPINAL SYMPTOMS. { <ul style="list-style-type: none"> Sensation of cord around Body Hyperæsthesia Anæsthesia Incoordinated Movements Contractures and Tremors 	{ <ul style="list-style-type: none"> Fulgurant Pains Patches Incoordination <i>Special Tremor</i> Spasmodic Paraplegia 	{ <ul style="list-style-type: none"> <i>Pseudo-neural Pains</i> <i>Spinal Hemianæsthesia</i> <i>Spasmodic Paraplegia, in the form of Hemiparaplegia</i> 	{ <ul style="list-style-type: none"> <i>Fulgurant Pains</i> <i>Formications</i> <i>Incoordination</i> <i>Paresis Tremor</i> <i>Special Tremor of the Hand</i>
TROPHIC SYMPTOMS. { <ul style="list-style-type: none"> Bedsore Arthropathies Fractures Muscular Atrophy 	{ <ul style="list-style-type: none"> Bedsore Arthropathies Muscular Atrophy 	{ <ul style="list-style-type: none"> 	{ <ul style="list-style-type: none"> Bedsore Muscular Atrophy

The Pathological Histology of General Paralysis. Dr. C. Lafenauer, *Centralblatt f. d. med. Wissenschaft.*, No. 39, 1877.—“As regards the pathologico-histological discoveries in dementia paralytica, they have been rather thoroughly treated of by many authors, and their results in turn have been confirmed by many others. It would be a laborious work to merely recapitulate them. But in regard to the regions of the pons and medulla, there has been astonishingly little reported, while the conditions of the brain and spinal cord have formed the basis of many investigations. This great deficiency—let us say of negative pathological findings—in the massed collection of motor and sensory nuclei in the pons and medulla is more remarkable, since paralytic conditions of the motor and sensory apparatus are hardly ever absent as cardinal symptoms of dementia paralytica.

“Meynert attempts to explain this fact in that, pointing out the indisputable connexion of the oculo-motorius, trochlearis, abducens, facialis, and hypoglossus with the raphe, he considers these fibres as crossed volitional routes leading to more highly situated brain centres; consequently, if certain brain tracts are diseased, irritative phenomena, hemiparesis, or total paralysis may occur in these routes of voluntary conduction without any pathological alterations in the nerve nuclei—an analogous condition to that after amputation of a foot in adults, in which case disease of the nerve cells of the gray spinal substance has never been found.

“Observations of actual disorder of the nerve nuclei of the pons and medulla have thus far been extremely rare. Lubimoff—that industrious investigator of the brain in general paralysis—found affections of the nuclei of the facial and hypoglossus in two cases, but did not give a detailed description. Besides these, he observed a formation of connective tissue around the olivary body (*Virchow's Archiv*, LVII.). Jessen (*Cbl.*, 1877, 225) and, according to his statement, Liouville report similar discoveries.

“The following pathological appearances which I met with in one case in the course of a purely anatomical preparation of several brains of paralytics in Prof. Meynert's laboratory, permit me to increase by one case the above stated pathological *casuistic* of general paralysis.

“The patient in question presented, during life, the characteristic symptoms of the disease, together with a total paralysis of the left, and a slight hemiparesis of the right facial; paralysis of the right, and insufficiency of the left abducens, and a very decided dis-

turbance of speech. After hardening and separation of the pons and medulla into transparent carmine-stained sections, I found the following pathological alteration:—In the left facialis-abducens nucleus the protoplasm of the nerve nuclei was diseased, and lost its capacity to imbibe carmine, causing many of the nuclei to appear spotted; the processes were brittle; but the greater part was in the highest degree sclerosed and atrophied; certain nerve nuclei exhibited the yellow atrophy described by Charcot. The facialis-abducens nucleus was particularly deficient in cells, and crossed by strong connective tissue septa. In the lower facial nucleus similar alterations existed. The out-going root fibres were atrophied. In the right facial nucleus the same alterations existed as in the left. In other regions of the pons were massed granulations. The two nuclei of the hypoglossus exhibited a still more marked sclerosis and atrophy of nerve cells than in those described, together with Charcot's yellow atrophy of certain cells and notable proliferation of connective tissue. In other regions of the medulla were granular bodies. In the gray floor were frequent remains of capillary hæmorrhages."

It appears, therefore, that in this case of progressive paralysis we have to do with a central disorder of the nerve nuclei described. [In a paper read before the British Medical Association in Manchester, 1877, on the "Morbidity Histology of the Spinal Cord in the Insane," I recorded the pathological alterations in the medulla which I had observed in two cases of dementia paralytica. In one "a transverse section of the medulla at its junction with the pons showed the nucleus of the left olivary body to have extended higher than that of the right. Numerous sections through the different parts of this organ from above downwards showed the vessels to be generally thickened, and covered with free nuclei, as in the pia mater and brain. The cells of the hypoglossal nucleus bilaterally were diminished in number, many of those remaining being in various stages of degeneration, some being pigmented, so as to resemble the *locus cœruleus* of the crus cerebri. In one section through the right nucleus a large vessel was seen containing several thrombi completely filling its canal, and passing into small branches proceeding from it. The cells of the nucleus of the vagus and glosso-pharyngeal were relatively less affected than those of the hypoglossal nucleus. The cells of the corpus dentatum of the olivary bodies were throughout slightly pigmented, and surrounded in parts by clear spaces. The gray matter of fourth ventricle con-

tained masses of nuclei which in some sections had passed deeper. The anterior and external bundles of nerve fibres did not appear much affected. The central canal for a short distance below its opening in the fourth ventricle was patent lower down; it was obliterated by proliferated nuclei." In the other case "the vessels throughout the entire medulla were widely dilated, especially in the superior half; their coats were surrounded with loose connective tissue, and abundantly nucleated. In one section through the floor of fourth ventricle a dilated vessel, visible to the naked eye, was seen passing obliquely outwards and forwards from the nucleus of the left hypoglossal; this vessel was in part varicose, excessively nucleated, and contained a firm plug; the tissue surrounding it (previously to staining) was of a dusky-vinous colour. The ganglionic cells of the nuclei of the hypoglossal, vagi, and glossopharyngeal were for the most part rounded and tuberoso, and either filled with fine yellow pigment or with masses of yellowish-brown granules. The centre of many of the cells appeared of a translucent earthy character, but little tinted, the outline only taking up the carmine; in these the nucleus had disappeared. The ganglion cells of the olivary bodies were similarly affected, but to a less extent. At the bottom of the posterior median fissure, below the level of the olivary bodies, was a patch of complete degeneration, the tissue being reduced to a clear structureless mass, crossed in different directions by fine fibres, and containing great numbers of amyloid bodies, ovoid and rounded. In the vicinity of this patch many of the nerve cells were reduced to masses of blackish-brown granules, preserving their fusiform outline."—*Rep.*]

Ophthalmoscopic Appearances in Insanity.—Ophthalmoscopic examination in insanity was made by Klein (*Wien. med. Presse*, 1877, No. 2) in 134 patients, of whom 42 were affected with general paresis, 19 with mania, 19 with epilepsy, 17 with alcoholism, 4 with apoplexy, 6 with melancholia, 1 with ataxia, and 26 with divers forms. In 89 cases positive results were obtained, which he divides into two categories—one of 31, the other of 58 cases. In the first class Klein found 9 times retinitis, 8 times discoloration of the optic nerve, 6 times atrophy, and 8 times hyperæmia of the retina. The second class consisted of 29 congenital anomalies, and 29 cases of a peculiar opacity resembling the senile metamorphosis of the retina. Since this change was found, in 18 cases out of 42 of general paresis Klein terms it *retinitis paralytica*. It was also found, though more rarely, in other forms of insanity. During an

epileptic attack Klein observed retinal ischæmia and clonic spasm of the iris (*Am. Journ. of Nerv. and Ment. Dis.*).

Senile Tremor.—At the session of the Soc. Méd. des Hôpitaux, July 13 (rep. in *l'Union Médicale*), M. Luys offered a communication in regard to that special form of trembling which is usually described as peculiar to old age, and is known under the title of senile tremor. He maintained that this, as a distinct form, and as peculiar to old age, did not really exist. In ten years' careful observation of senile pathology in his service both in the Bicêtre and in the Salpêtrière, he had never observed any tremor in healthy old persons. He considered that senility was by no means necessarily accompanied by tremor. He attributed the partial tremors which existed in certain cases in the muscles of the hand and those of the neck, to incomplete forms of paralysis agitans, and to localised sclerosis in certain portions of the medulla and pons (*Am. Journ. of Nerv. and Ment. Dis.*).

THERAPEUTICS.

Report by Prof. Flemming on the present condition of the Therapeutics of Lunacy (Psychiatry) and on Asylums in Germany; abstracted by Dr. Rabagliati in Brain. (Archiv Italiano per le Malattie Nervose.) Prof. Flemming confines himself to the last ten years. After remarking that the improvements in treatment have been considerable in that period, he refers to the great increase in the numbers of the insane. The increased supply of asylums hardly meets the demand. The increase in lunacy he ascribes to the growing pressure of civilisation, the progress of industry, the *auri insatiabilis fames*, and the increase of nervous diseases in general, with depraved hereditary influences mainly dependent on marriages of consanguinity. A special cause in England and America is said to be the mischievous effects of alcohol. In Germany, every district, every province, and every township, at least, possesses one or two asylums. In the last half-century eighteen or twenty new asylums have been built—nine in the Kingdom of Prussia and three, at least, in the Rhine Provinces, while it is contemplated to increase the size of those at Saxenberg and Mecklenberg. In many of these the insane are carefully provided, as far as possible, with the pursuits to which they had been accustomed. Accordingly, we find agricultural "colonies" at Hildesheim in Hanover, Kolditz and Hubertsburg in Saxony, and one in contemplation at Mecklenberg and elsewhere. Lunacy

being on the increase also in the higher classes, private asylums have become much more numerous in the same period.

As to treatment, two methods are detailed. The first consists in the complete abolition of coercive remedies. With the discussion of this method English readers are perfectly familiar through the works of Tuke, Connolly, and others. The second is described as the narcotic method. Narcotics are used—such as hyoscyamus, small doses of opium, hypodermic injection of morphia, very small doses of atropine, either alone or combined with opium. Allied to these are such remedies as chloroform, bromide of potassium (which diminishes cerebral congestions), and hydrate of chloral. Attention is specially directed to the “hypnoticum” of Prof. Preyer, of Jena, which is a lactate of soda and acts as a calmative, Preyer believing that the accumulation of lactic acid in the normal brain is the cause of normal sleep. This remedy is administered in doses of five to sixteen grammes by the mouth or rectum. This remedy, however, is still on its trial.

Prof. Flemming has a high opinion of the value to the science of psychiatry in Germany of the frequent congresses of medical men engaged in this branch. The first of these was held at Kiel, at the suggestion of Prof. Jessen, and has become a yearly institution. The paper closes with a notice of the German periodicals devoted to this branch of science, and with a sketch of the arrangements made by the universities for its inclusion in the clinical course. It is stated that the German Empire, with a population of 40,000,000, contains 87 public asylums with 20,700 patients, and 107 private asylums containing 5,000 patients. These establishments are attended by 325 medical men. Twenty-six establishments are devoted to the care and instruction of idiot children.

Magnets and Static Electricity in Hysterical Anæsthesia.—At the Soc. de Biologie, March 16 (*Gaz. des Hôpitaux*), M. Romaine Vigouroux gave an account of some interesting experiments performed at the Salpêtrière by invitation of M. Charcot. The following are the principal results:—A steel bar magnet, held at a distance of many millimetres from an anæsthetic part, recalled the sensibility in a time rarely exceeding ten minutes. It makes no difference whether both poles or either one of them is presented, the result is the same. As a counter-proof, if the centre of the bar be presented no effect is produced. This effect has been noted as well in cutaneous anæsthesia as in that of the organs of sense. The effects observed have a great analogy to those resulting from the

metallic applications of M. Burq (increase of muscular power, return of sensibility). It appears probable that magnets, which played a great part in the therapeutics of the last century, should be rehabilitated with more precise indications.

M. Romaine Vigouroux next reported two experiments upon patients with static electricity, using the dielectric machine of Carré. The patients having been placed on an insulated stool, under the influence of moderate discharges, the sensibility was found to return and to become generalised more rapidly than by any other means. This goes to confirm the *role* attributed by M. Vigouroux to the electric tension in the phenomena produced in hysterical patients by metallic applications, continued currents, &c. (*Am. Journ. Nerv. and Ment. Dis.*)

MODE OF REDUCING PROLAPSUS OF THE RECTUM.

IN *The Hospital Gazette*, July 11th, 1878, Dr. J. C. Davis gives the following directions for reducing prolapsus of the rectum:—If the patient be a child, place it on its back, flex the thighs and legs at a right angle to the body; let the nurse or an assistant hold them in this position; wipe the mucus or other discharge from the prolapsed part; then take an old handkerchief, a piece of soft linen, or cotton rag, place it loosely over the index finger and introduce it slowly into the rectum; the mucous membrane will adhere to the rag, and the part last descending will be the first to repass the sphincter. Carry the finger the full length of the rectum; then with two fingers of the left hand (one on each side) sustain the gut while withdrawing the finger. To remove the rag, keep up the counter-pressure with the fingers of the left hand, and pull gently, first on one side then on the other of the handkerchief or rag, and in this way remove it from the rectum. If the patient be other than a child, place him in the “Sims’ position,” and the same procedure will accomplish the object in view. The subsequent treatment, surgical or otherwise, will depend on the causes which have produced the disorder. Dr. Davis says that this method has proved eminently successful in his hands for more than a score of years. Its advantages are simplicity, facility, and rationality; there is no squeezing or brushing of the parts, hence little or no pain, unless the gut be inflamed.—*London Medical Record*, Nov. 15, 1878.

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE
COLLEGE OF PHYSICIANS.

SESSION 1878-9—*First Meeting.*

HENRY H. HEAD, M.D., President.
GEORGE F. DUFFEY, M.D., Honorary Secretary.

Wednesday, November 6th, 1878.

The PRESIDENT in the Chair.

DR. G. F. DUFFEY, Honorary Secretary, read the Report of the Council for the past Session.

The PRESIDENT delivered the following Inaugural Address:—

GENTLEMEN,—On taking the chair of the Medical Society, which I do as President of the College of Physicians, I wish to express how sensible I am of the honour conferred upon me; but I cannot help thinking that the distinction should more justly belong to one of those members who worked with such diligence, and whose careful investigations, patient study, and elaborate papers, have established the reputation and extended the fame of this Society. As, however, your rules confer the office of President on me, I shall endeavour to perform its duties to the best of my power.

It has been usual, at the opening of the Session, to make some observations on one or more of the leading topics of our profession, but I have determined to depart from the ordinary custom, and will not weary you with an address, as at the meeting of the British Association, so recently held in Dublin, many collateral subjects, bearing more or less on our now extended science, have been fully and ably discussed. The scope of our profession, embracing as it does all that concerns the bodily welfare of mankind, has become so enlarged, that it is hard to say what

branch of natural or even physical science should be excluded from our consideration.

On reviewing the work of the past Session, I think I may fairly say that it compares most favourably with any of the previous ones. Many of the papers show evidence of great research and patient thought. The first on the list is a paper by Dr. Hayden, entitled "An Abstract of 330 Cases of Phthisis, with Observations on Symptoms and Treatment," which, compiled as it is with his usual care and elaboration, cannot but increase considerably our knowledge of the statistics of the disease. Such a large number of cases, so carefully observed and noted, must, if attentively studied, give a more true and accurate value to those symptoms and physical signs on which we rely in forming a diagnosis in obscure and doubtful cases; and, although the results of treatment are not very encouraging, they still afford a reasonable hope of benefiting, and even curing in many instances, if the patient can only be placed under favourable circumstances.

I think the Society is much indebted to Dr. Sigerson for his paper on "Alternate Paralysis," as he has not only detailed an accurately-observed case of this somewhat rare form of disease, but has given us a most elaborate *résumé* of all that is known upon the subject. We are all aware how difficult it is to locate the lesions in the nervous centres, which produce almost any of the paralytic affections, and we cannot but thank anyone who renders our knowledge on these subjects more accurate.

Dr. Walter Smith gives us a very valuable paper on "Facial Paralysis; with Remarks on the Action of Induced Currents, and Interrupted Voltaic Currents." I will not enter on the subject of this paper beyond congratulating Dr. Smith on the manner in which he has dealt with it, and expressing a hope that he may continue his researches on medical electricity. It requires an acquaintance with physics, as well as an accurate knowledge of medicine, to prosecute inquiries of this kind with success, and it is a matter of great importance to the profession that the exact value of electricity as a therapeutic agent should be defined—thus removing an important means of treatment out of the sphere of quackery.

Dr. J. W. Moore's case of "Typhus with Hyperpyrexia" is one of a class which must interest every practising physician, as we all dread an extreme degree of temperature in any form of fever, whether it be originated by central nervous lesions, or be itself the cause of them. Dr. Moore's own remarks, and valuable quotations from the best authors, show how much is still to be learned on the subject.

Dr. Doyle contributed a report on a case of obstructed circulation, which elicited a very interesting discussion upon the true interpretation of many of the symptoms and physical signs which had been observed.

Dr. Grimshaw read a paper on the relation between the distribution

of cholera in Dublin (during the epidemic of 1866) and the geological structure of the Dublin districts. His investigations on this subject appear in a great measure to confirm the theory of Professor Pettenkofer, that a gravelly soil tends very much to further the spread of the epidemic by retaining those portions of sewage matter which there is little doubt are the promoters of the spread of cholera and other allied diseases; but I think, before assigning a definite value to such a theory, that the prosecution of the subject in the manner suggested by Dr. Grimshaw would be most desirable.

Dr. Hayden exhibited to the Society a lad of nineteen years of age, the subject of congenital atrophy, or arrested development of the right upper extremity. The interest in the case appeared to be the great degree of deformity and the loss of power in the atrophied limb.

Dr. Nixon exhibited a boy, aged eleven years, labouring under cyanosis, which he believed to be dependent on congenital lesion of the heart, and which was associated with a singular deformity of the left forearm.

Dr. Williams (of Liverpool) read a valuable paper, entitled, "A few Remarks on the Treatment of Pleurisy and Empyema."

The cases detailed by Dr. Williams form an important addition to our knowledge on this subject, as they confirm the value and safety of the modern mode of treatment for effusions into the pleura. There can be no doubt but that properly applied strapping in the first stage of acute pleurisy gives great relief, and often helps to arrest the progress of the disease; and some of his cases demonstrate clearly the advantage to be derived from early tapping in empyema, and that a free opening into the cavity of the pleura may safely be made when required for the evacuation of matters which could not escape through the simple puncture caused by tapping.

Dr. Grimshaw has made to the Society an important communication as to the prevalence of small-pox, and has most plainly shown the relation between the severity of epidemics and the neglect of vaccination. He traced with great research and exactitude the mortality from small-pox through the decades from 1831 to 1871, which prove most clearly the value of vaccination as a means of protection. But the truth of this has been so repeatedly established that it only tends the more to show how hard it is to educate the multitude.

Our profession during the present year has sustained the loss of two of its most distinguished members. It is true that the notice of their death and expressions of deep regret have already been recorded in the proceedings of this Society, but I do not like to occupy the chair, once so ably and honorably filled by them, without paying a short tribute to their memory. It is not my intention to dwell on their professional career, on the works they have accomplished, or the eminence to which they have

attained, nor need I tell of the means whereby they extended the fame of the Dublin School of Medicine over the civilised world (for all this has been already told). I would rather speak of those high qualities, more of the heart than of the head, which they possessed in so signal a degree, and which secured them the love and esteem of so many. Dr. Churchill, although not a native of Ireland, soon identified himself in feeling with the country of his adoption. In his home he was the centre of affection and veneration; but he carried the breadth of sympathy and kindliness of heart, for which he was so remarkable, far beyond the limits of his family circle, and made the term "patient" almost synonymous with that of friend. Although possessing in common many of those characteristics which made them both distinguished, Drs. Stokes and Churchill, in some respects, differed widely. The latter carried his high social qualities into his professional life; the former appeared to the outer world as the eminent physician, the grave and calm philosopher, but to the inner circle he afforded so great a contrast as almost to seem to be the possessor of two separate identities. His cultivated tastes and powerful mind, stored with varied knowledge, combined with his ready wit and brilliant conversation, rendered him a genial and delightful companion to all who had the privilege of being numbered among his friends. But the points of similarity in the two characters were as salient as the points of difference. Both had as their object the elevation of their profession and the welfare of their fellow-men; liberal and generous to those in need, both have earned the gratitude of many, while the lives of both equally demonstrate the fact that men can be at the same time great and good.

DR. MACSWINEY read a paper, entitled "A Fatal Case of Railway Spine." [It will be found at p. 455.]

DR. HENRY KENNEDY said it appeared to him that the mental symptoms evinced by the lady when Dr. MacSwiney first saw her showed that her brain must have suffered. That her symptoms were traceable to the railway accident he thought there could be no doubt. Erichsen gave several cases in which months elapsed before the slightest symptoms of injury appeared, and yet when the symptoms did appear they were similar to those resulting from spinal and cerebral shocks. Therefore he thought that the brain as well as the spine had been injured in Dr. MacSwiney's case. As to the nature of the injury, he thought it must have been more or less of a rupture leading to a gradual effusion of blood on the spine and injury of the spinal marrow as distinguished from the membranes. Had the membranes been injured and inflammation occasioned, the sufferings of the patient would have been much greater than they had been. From the cases recorded by Erichsen, it appeared that in railway collisions persons who were sleeping at the time escaped

better than those who were awake, and also that those who sat with their backs to the engine came off better than those who faced it. Weir Mitchell's work, which was not as generally read as it deserved to be, threw a great deal of light on the subject in question.

Note on so-called Compensatory Emphysema in Acute Thoracic Diseases. By REUBEN J. HARVEY, M.D.; M.R.I.A.; Assistant Physician to the House of Industry Hospitals and to the Cork-street (Fever) Hospital; Lecturer on Physiology in the Carmichael Medical College, &c.

SOME apology is, I feel, due to the Society for the very elementary nature of my communication this evening. My object is simply to call attention to an explanation of a well-known physical sign, which I find is held and taught by several in this city, but which is not in accordance with the views put forward in modern text-books, nor, as I hope to show, with fact.

The phenomenon to which I refer is a peculiar condition of resonance, sometimes amounting to actual tympany, met with in the course of certain acute thoracic diseases; as, for example, over the unaffected lobe in lobar pneumonia; over a portion of unaffected lung tissue in the neighbourhood of hepatised tissue, more particularly when the pneumonic process is extending; over the upper lobe in pleural effusion, &c.

Now, the idea seems to exist that puerile breathing, which frequently accompanies these altered conditions of resonance, is an evidence that the unaffected portion of lung is doing more work than previously—that, in fact, more air is entering this portion so as to compensate for the inactivity of the affected part. Hence, any increased resonance is supposed to be due to increased distension of the lung with air; and when tympany exists, it is explained by the supposed occurrence of a compensatory emphysema.

This explanation I regard as utterly false. I shall, therefore, first endeavour to show, that the conditions for the production of a compensatory emphysema are altogether wanting, and I shall then briefly refer to the explanations given in modern text-books, which, at least, accord with what we find *post mortem*.

I must ask you, then, to bear with me while I refer to a few very elementary physical considerations; for these form the basis of our knowledge of the mechanism of respiration, and it is essential that we should keep them in mind if we would understand what compensatory emphysema really is, and how it is brought about. Let me remind you, in the first place, that inspiration, so far as the lung is concerned, is a purely passive act. The expansion of the lung is effected solely by the atmospheric pressure. If a small india-rubber balloon be suspended in the receiver of an air-pump and allowed to communicate with the outer world by means of a glass tube, it will hang flaccidly so long as the

tension of the air is the same in the interior of the receiver as in the surrounding atmosphere. If we now exhaust the air in the receiver, the balloon expands rapidly, until, having attained a certain size, equilibrium becomes established. Before I exhausted the receiver the atmosphere was pressing equally on both the inside and outside of the balloon. Now, however, the tension in the receiver having become reduced, the elastic force of the balloon is called into play, and it exactly makes up the difference between the air-tensions on the two surfaces of the balloon. If, then, we let T_1 denote the pressure in pounds per square inch exerted by the atmosphere in the receiver, and E_1 the elastic tension exerted by a square inch of the balloon, it is evident that the forces acting on every square inch of the balloon are $T_1 + E_1 = 15$. If we exhaust still more, it will be $T_2 + E_2 = 15$; and, hence, as the tension of air in the receiver becomes diminished, the elastic force exerted by each square inch of the balloon becomes just so much greater, until at last, if we could make a perfect vacuum, we should have $E = 15$ lbs. This is exactly the condition we have in the case of the thorax. As far as inspiration is concerned, the lung has never to sustain a greater pressure than 15 lbs. per square inch, and this pressure is attained both in the pause after expiration and at the acme of inspiration. The pressure per square inch at both these periods being the same, but the number of square inches in the latter case being much greater than in the former, it is evident that the total lung has to sustain a much greater pressure when distended than when relaxed. If, for example, a portion of our balloon which before distension measured one square inch came afterwards to measure four square inches, it would have to support 60 lbs., whereas formerly it had to support but 15 lbs. The greater the expansion of the balloon the greater the elasticity it has to exert, until ultimately the membrane may become so attenuated as to be unable to bear the stretch put upon it, and so it will burst. A similar state of things occurs in the lung whenever it is stretched beyond what it is capable of. What happens here, however, is not an actual bursting, but the overstretching destroys the delicate elastic tissue of the surface of the lung and breaks down the septa which separate the alveoli.

Now, in the case of a healthy lung, free to expand in all directions, the cavity of the thorax never becomes so large that the lung cannot without injury completely fill it. But this is not the case in an unhealthy lung, nor if its free, uniform expansion be hindered by any cause—as, for example, in certain conditions of pleural adhesion. In these cases a portion of lung may become over-distended, and these are the cases in which true compensatory emphysema arises.

I had recently an opportunity of seeing a very beautiful example of this condition in the dead-house of the Whitworth Hospital. There were extensive old-standing adhesions fixing the upper portion of the

lung. These terminated inferiorly in a firm, almost horizontal band, about two inches above the anterior lower limit of the lung, the pleural cavity below this being quite free from adhesions. The portion of lung which occupied this part of the pleural cavity was the seat of extensive emphysema—the anterior inferior portion more particularly.

This I regard as a typical case of compensatory emphysema; and if we would understand the manner in which such a state of affairs is brought about, we cannot do better than repeat a simple experiment by which my former colleague, Professor Gerald Yeo, used to demonstrate its production. If I exhaust a receiver containing an air-balloon, as already described, the latter expands uniformly until it comes in contact with the walls of the bell-glass. Now, however, the friction between balloon and glass is so great that the balloon tends to stick, and if I continue to exhaust, the lower part of the balloon is practically all that expands. We may see this becoming more and more attenuated, until ultimately it bursts. Now, if I take an identically similar balloon and lubricate its external surface as well as the inner surface of the receiver, and repeat the experiment as before, we find that when the balloon comes in contact with the glass, it does not stick, as in the former case, but slips readily downwards, thus allowing a uniform expansion, owing to which I can continue the exhaustion until the balloon is drawn down so as actually to touch the orifice of the pump.

This clearly demonstrates the use of the pleura. As the thorax expands, the lung expands with it; but under normal circumstances, as we know, the relative position of the two pleural surfaces becomes considerably altered, and it is owing to the possibility of this that the lung is enabled to expand uniformly. As the diaphragm descends, the whole lower portion of the lung descends with it; and the lower portion of the thorax, which is filled by a certain portion of lung tissue in the unexpanded state, is filled in the expanded state not only by this but by a considerable portion that has come down from above. Hence, when a band of adhesions, such as I have described, prevents the lung slipping downwards, a far smaller portion of lung than usual has to expand to fill a given space, and hence it may become stretched to a greater extent than it is able to bear, and so emphysema result.

For the production, then, of compensatory emphysema, in which, from the very meaning of the term, inspiration is the sole distending agent, since the distending force is never greater than 15 lbs. on the square inch, the one essential condition is, that a portion of lung should have to expand into a much larger space than usual—into a larger space, in fact, than its natural extensibility will permit.

If we now turn to the cases in which we have the peculiar character of resonance to which I have referred, we shall see that this one essential condition is always absent. In the case of a lobar pneumonia, we find

the affected lung greatly enlarged—particularly so in cases of gray hepatisation; and it is in these latter cases, if I mistake not, that tympany is most frequently met with. As a result of this the unaffected lobe occupies a much smaller space than usual; so much smaller in some cases, that, when the thorax is opened, *post mortem*, it does not tend to collapse—simply because it is already collapsed—its elasticity not having been called into play at all. In the case of extensive pleural effusion, we have practically the same state of things. The lower lobe may be so compressed as to be almost airless, while the upper lobe is reduced to its natural, collapsed volume, and floats on the top of the fluid.

Hence, instead of a portion of lung having to expand into an abnormally large cavity, we find the cavity abnormally small. The tension, so far from being abnormally high, is often reduced to zero; and thus conditions the very reverse of those essential for the production of compensatory emphysema are present.

If we now turn to modern text-books—as, for example, Guttman and Gee—we find diminished tension of the pulmonary parenchyma given as one of the causes of a tympanitic note. Guttman gives three sources of tympany over the thorax, viz. :—

1. Cavities within the parenchyma of the lung.
2. Air or gas in the pleural cavity.
3. Diminished tension of the pulmonary parenchyma.

The ordinary percussion chest-sound he considers to be the result of three factors—namely, (1) the vibration of the air in the lung, (2) the vibration of the walls of the thorax, and (3) the vibration of the pulmonary parenchyma itself; and that it is owing to the musical interference of these factors, one with another, we have a chest percussion-sound, and not a tympanitic, musical note. To explain this, he refers to the fact, that the normal tympany of the abdomen ceases to be pure tympany in cases of extreme meteorism. This is due to a similar interference; for if a portion of intestine be forcibly distended with air, and percussed, it will yield a non-tympanitic sound, but if the tension of the walls of the tube be relaxed so that they can no longer be made to vibrate, percussion will give a tympanitic note. A similar state of things exists in the case of the lung. If a lung be removed from the body and percussed in its collapsed condition, it will give a tympanitic note, but if distended to its normal volume it will give a non-tympanitic sound. The disappearance of the tympanitic note is again explained as being due to the interference caused by the introduction of a new factor—namely, the vibration of the tense pulmonary tissue itself. Guttman considers that the difficulty suggested by Wintrick, of supposing such small cavities as the alveoli of the lungs capable of giving rise to the tympanitic note, may be met by recollecting that the alveoli are but the terminations of an extensive communicating series of tubular cavities.

Whether this be the case, or not, I shall not now delay to discuss. Neither is it my intention to enter into the question as to whether there are not other special causes of tympany. My object has been to point out, that in the class of cases I have considered we have conditions for diminished and not for increased pulmonary tension; that a collapsed lung gives a tympanitic note, and a distended lung a non-tympanitic sound; and that, consequently, the idea put forward by Guttman and Gee—namely, that the tympany is due to the absence of pulmonary tension, and consequent removal of a source of musical interference—is, in all probability, correct; and that the view of those who hold it to be due to compensatory emphysema, is certainly wrong.

The PRESIDENT said Dr. Harvey's communication illustrated in an interesting manner the way in which every part of a healthy lung expanded to meet the walls of the chest. As to the cause of the tympany, the ideas put forward in the paper were different from what was ordinarily taught.

DR. HENRY KENNEDY thought that emphysema of the lung had nothing to say to the phenomenon in question. He had met two forms of it, but in the course of thirty years had not seen above eight cases. In one of those forms the pneumonia attacked the base of the lung, and a peculiar note was given under the clavicle on the corresponding side. It was a clearer note than that given in health. In the second form which he had seen the pneumonia attacked the upper lobe of the left lung. On the first day he saw the case there was complete dulness. On the following day he was amazed to find tympany of a most extraordinary character at the spot where there had been dulness on the day before, and on the third day the tympany disappeared. Dr. Graves was the first to notice and describe this form in which the tympany came and went suddenly. He had seen it appear and disappear within twenty-four hours. In the case to which he had just referred the only explanation he could give of the tympany was that a certain amount of air had got into the pleura. The tubular breathing and crepitus were not altered on the third day. He looked on emphysema as a chronic disease occasionally occurring as the result of acute disease, and not coming under the class of cases of which he had been speaking.

DR. WALTER SMITH said they had no experimental or *post mortem* demonstration of the existence of real *bona fide* emphysema as accounting for the tympanitic note in question, or muffled tympany, as it might be called, occurring in connexion with limited pleural effusion or localised pneumonia. Again, considering that in some cases in which the phenomenon had been observed the lung had less room to expand than before, whatever theory they might adopt that of compensatory emphysema would have to be abandoned. It seemed to him that the pitch of the

note brought out on percussion depended upon which of the over-tones of the fundamental note was sounded. According to the conditions of the neighbouring pulmonary alveoli, sometimes one harmonic would vibrate and sometimes another, and the note of the harmonic would be lower or higher according to the tension of the alveolus. A further source of variation would be the enlargement of any of the alveoli.

DR. HARVEY, in reply, said he was at one with Dr. Henry Kennedy in never having called the phenomenon in question compensatory emphysema. Gentlemen who upheld the idea that the note in question was due to compensatory emphysema asserted that in consequence of the lower part of the lung having become solidified the air that should have gone into it went into the upper part of the lung. In reply to Dr. MacSwiney, who had asked how it happened that in cases in which adhesions of the pleura were known to exist, a note of this sort had been heard in one part of the case and had afterwards disappeared, Dr. Harvey said that that was a condition into which he had not entered at all. What he had spoken of was simply compensatory emphysema as an explanation of conditions where they had nothing at all to do with pleural adhesions.

The Society then adjourned to December 4th.

A NEW OPERATION FOR PHIMOSIS.

BEING struck by the inconvenience of the ordinary bleeding operation, M. Jude Hue (*Le Progrès Médical*) has proposed a section of the prepuce in the median line and on the dorsal surface, by means of the elastic ligature. For this purpose a needle, threaded with an elastic band, is passed between the prepuce and the gland until the bottom of the *cul-de-sac* is reached. The prepuce is then transfixed, and two ends of the elastic are knotted at the free border of the prepuce. In ten days or a fortnight the ligature comes away and the operation is complete. M. Horteloup had invited M. Hue to operate upon patients in his hospital, and the results at first were not encouraging, as a good deal of pain resulted for 24 or 48 hours. When the patients were seen three months afterwards, the results were found to be very satisfactory, so that M. Horteloup recommends this simple method in cases of phimosis without hypertrophy of the prepuce, and where there is no inflammation or thickening of the integument, and he thinks this plan will be found of great service in children.—*London Medical Record*, Nov. 15, 1878.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

FORTY-FIRST ANNUAL SESSION.

EDWARD B. SINCLAIR, M.D., President.
WILLIAM ROE, M.D., Honorary Secretary.

Saturday, November 16th, 1878.

THOMAS DARBY (outgoing President) in the Chair.

President's Address.

GENTLEMEN,—It is my duty to remind you that during the past session several important and interesting subjects were brought before this Society, and discussed and criticised in that gentlemanlike and courteous spirit which has at all times signalised the proceedings of the Dublin Obstetrical Society and rendered the President's task easy and his burden light. Amongst those subjects the chief have been:—

A Case of Fibrous Polypus; by Dr. M'Clintock.

A paper on the Influence of the Uterus in Eye Disease; by Mr. Swanzy.

A paper on the Use of Warm-water Injection into the Uterus in *post partum* Hæmorrhage; by Dr. Atthill. A ready and possibly a safe application, which may be found effective, but of which I have myself no experience.

An Ovarian Tumour was exhibited by Dr. S. Mason.

Two cases of Transfusion—one by Dr. M'Clintock and one by Dr. Purefoy—in each of which Dr. Robert M'Donnell successfully applied his apparatus for the transfusion of defibrinated blood. In the discussion which ensued, it struck me as being especially noteworthy that both Dr. M'Clintock and Dr. M'Donnell agreed in opinion that transfusion ought not to be commenced until the hæmorrhage had ceased, as, judging from my own experience in such cases, I was of opinion that if a woman survived the loss of blood for even a few minutes after hæmorrhage had ceased, there might be a reasonable hope that reaction would come on and render transfusion unnecessary.

An interesting and rare specimen of Fracture of the Frontal Bone of a Fœtus was exhibited by Dr. William Smyly.

An Ovarian Cyst presenting some unusual features was shown by Dr. Atthill.

A Double-action Ecraseur, recently invented by Dr. John Knox Denham—a valuable addition to our stock of surgical appliances—was exhibited and explained.

A practical paper on Milk Fever, by Dr. Macan, gave rise to an interesting discussion.

A most important paper on the Value of the Hypodermic Injection of Hydrate of Chloral in Puerperal Eclampsia, by Dr. Purefoy, naturally excited considerable interest.

A case of Dropsy of the Amnion, and a Forceps invented by Dr. Anderson, of Liverpool, were brought under your notice by Dr. Kidd.

An enormous Fibroid Tumour of the Uterus, removed at the Richmond Hospital by Dr. Thornley Stoker, resulting in the recovery of the woman, was also exhibited by Dr. Kidd. Recovery after such an operation not only reflects great credit on the skill of the operator but goes far indeed to demonstrate the advance which surgery in uterine disease has made within a few years. A very few years back I doubt that any surgeon could have been found who would have ventured to suggest, much less to undertake, the removal of such an enormous mass of disease from the cavity of the abdomen.

A Report of the Clinique in the Rotunda Hospital for the past year, of great value in a statistical as well as in a practical point of view, was contributed by Dr. Atthill.

The adjourned debate on Surgeon-Major Johnston's cases of Puerperal Remittent or Septicæmic Fever closed the session. The cases he selected for your consideration were accompanied by charts marking with great accuracy and care the morning and evening variations of the temperature and of the pulse; and so far as these variations serve to indicate the progress of fever, they are, no doubt, of great value; but why he prefixed the term "septicæmic" to cases which appear to me to have presented the ordinary train of symptoms met with in puerperal fever is a mystery to me. Dr. Johnston did not produce any evidence that either fermentation or putridity of the blood presented itself in any of his cases. I hope both he and you will forgive me for dwelling a little upon this subject; and, believe me, it is not a mere vain desire to cavil at a word or in the slightest degree to undervalue Dr. Johnston's important communications, but because I believe the words "zymosis" and "septicæmia" express that which is not in accordance with our actual knowledge of pathological facts. Fermentation and putrefaction as they occur in the dead, are, no doubt, subject to, and are easily accounted for by, the laws of chemical action; but in the living organism the life-unit exercises a control the full extent of which it is beyond our power fully to estimate, but which, to an absolute certainty, precludes the possibility of fermentation or putrefaction being established in the blood while life remains. I would ask each one of you to divest your mind of preconceived impressions on

this subject, and look back upon your own individual experience, and say frankly, without prejudice, whether you have ever seen a case in which fermentation or putrefaction in the living blood was exhibited. If you cannot say that you have, I would then ask what precise meaning you attach to so-called zymotic disease and to the word "septicæmia"?

Gentlemen,—In the year 1828 (I believe it was in this very month) the late Dr. Graves introduced me to Fleetwood Churchill, and I am so proud of having retained the friendship of that worthy and excellent man up to the hour when (immediately before his retirement to the country) I shook hands with him for the last time and bid him "good-bye" in this room, that even at the risk of being thought egotistical, I cannot refrain from adding my feeble testimony to his great worth, and from expressing my sense of the loss which this Society has sustained in his death.

I must further trespass on you for a moment while I refer to a dreadful calamity which has recently befallen one of your oldest and most respected Vice-Presidents, William O'Brien Adams, whose son—a most talented and promising young gentleman—was killed by a fall from his horse but a few days since; and I do hope that you will with one consent agree with me that our Honorary Secretary be requested to write a letter of condolence to Dr. Adams, expressive of the deep sympathy with which the members of the Dublin Obstetrical Society have been affected by the melancholy intelligence of the sudden death of his dearly-beloved son, Dr. John James Adams.

And now, gentlemen, I have, in simple, unaffected, but sincere words, to thank you for the great honour you have conferred upon me by having twice elected me to the proud position of President of this important and most useful Society.

Clinical Report on the Use of the Forceps during Seven Years, from 1868 to 1875.—DR. GEORGE JOHNSTON read a paper on the use of the Forceps in the Rotunda Lying-in Hospital, Dublin, during the period of his Mastership of that institution. The discussion on the subject of this communication was adjourned to the next meeting.

[Dr. Johnston's paper, with the discussion thereon, will appear in the next number of the Journal.]

COMMENTARIES ON DISEASES OF THE KIDNEYS.

PART I.

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PHYSICAL EXAMINATION OF THE KIDNEY.—Source of information as to its size, shape, position, consistence, movability:—(a) Inspection; (b) Palpation; (c) Percussion—Normal area of renal dulness; chief obstacle to percussion. Method of making a local exploration of the Kidney—manual examination. **LOCAL SYMPTOMS OF RENAL DISEASE:**—Pain—variable—uncertain—absent in many most destructive Kidney changes—Peculiarities about renal pains. **THE URINE.**—The principal source of direct information as to the condition of the Kidneys—its physiological importance. Its analysis—Necessity of operating upon a specimen of the 24 hours' secretion—Matters to be attended to in an examination of the Urine:—(a) Quantity; (b) Colour; (c) General appearance; (d) Specific gravity; (e) Chemical composition; (f) Character of the sediment. *The "Individual Urinary Capacity"* (Vogel)—1200 to 1400 cub. ctm. (42 to 49 fl. oz.) for moderate drinkers; 1400 to 1600 cub. ctm. (49 to 56 fl. oz.) for free drinkers—Mode of studying the Urine colour—Source and significance of urinary pigment—Cause of the pallor of the urine in Renal Disease—Cause of its haziness in same. *Specific Gravity*—meaning of—S. G. of the different strata of Urine in a full bladder varies widely. Cause of normally acid reaction of urine, yet total quantity of urine frequently alkaline—Especial attention directed in Kidney disease to *Urea* and *Albumen*—Reason of the importance of knowledge of the *Urea content*—Its physiological significance—Causes which regulate the elimination of Urea—(a) individual weight, (b) food, (c) work done—Increased by febrile movements. Estimate of normal excretion of Urea—Greatly reduced by fasting or starvation. **ALBUMEN.**—Ready tests for—Deception in use of tests—Diagnostic value of albuminous Urine sometimes great, sometimes small. (a) Extra-renal Albuminuria—Sources: pelvis of kidney, ureter, bladder, urethra, female genito-urinary tract—How distinguished from renal albuminuria—When from both sources how to decide. (b) Albuminuria renalis—Why not observed in health—The mechanism of the urine secretion. **DOCTRINE OF ALBUMINURIA (renalis).** *Causes*—(a) Increase of blood pressure; (b) Structural alterations in capillary walls; (c) Combinations of (a) and (b). *Transitory Forms of Albuminuria.*—(a) Cardiac Albuminuria—Its cause and source; (b) Epileptic do.; (c) Febrile do.; (d) Alimentary do.; (e) Neurotic do. Albuminuria from structural alteration in the kidneys—Not observed in every renal disease. Characters of the urine in *Cirrhosis of the kidney* (granular atrophy)—explanation of same. Ditto in *amyloid degeneration* (lardaceous disease). *Post Cholera Albuminuria.*

For obvious anatomical reasons the local objective symptoms admitting of demonstration are really fewer in affections of the kidney than in

those of almost any other organ in the body. When one of the kidneys is converted into a tumour of any considerable size, or presents its pelvis distended into a large cyst, one may be able, by mere *inspection* of the body, to notice the protrusion of the affected side. The site usually occupied by such a tumour is the side of the body between the lower border of the twelfth rib and the brim of the pelvis. In this situation the abdominal walls may be bulged out before it, the lowest ribs being occasionally protruded so much that the circumference of the thorax upon the affected side is notably increased. The renal tumour usually enlarges from behind forwards, extending towards the umbilicus. Careful inspection will often lead to the discovery of the first appearance of the dropsy in post scarlatinal nephritis—since, as a great many patients are confined to their beds at the time the dropsy commences, the œdema frequently appears first of all in the back, in the lumbar regions; in other cases it appears first in the face.

The physical examination of the renal region affords information, under certain conditions, of the size, shape, position, and consistence of the kidney. In attempting the *local exploration* of the kidney, the patient should be directed to lie on his back with the thighs slightly bent upon the trunk, and at the same time separated somewhat from each other, in which position the abdominal muscles are best and most easily relaxed. To examine the right kidney the physician should stand on the right side of the patient, let him then place his right hand upon the anterior wall of the abdomen and pass his left hand to the back of the patient, pressing the kidney region with his left hand from behind forwards, pushing the organ towards the front against the palm of his right hand. *Palpation* of the kidney is of special value in estimating the characters of renal tumours, and detecting fluctuation in or about the kidney; it is also a means of estimating the movability of the organ. *Percussion* is also to be employed in the physical examination of the kidneys. For the purpose of making a proper examination by percussion, the patient must be laid upon his face with a pillow underneath his belly, in order that the back may be well stretched. There exists, normally, a space about five centimetres (two inches) broad in the lumbar region, between the twelfth rib and the brim of the pelvis, which gives a dull note when sharply struck with a hammer upon a plessimeter; and, if the plessimeter be moved towards the anterior abdominal wall, this dullness is quickly exchanged for tympanitic resonance—the latter marking the course of the intestine which borders against the kidney—always supposing that the intestine is not packed with fœcal matter. If a kidney be at all notably enlarged, the area of dullness marking it will extend further outwards than it should; its extension upwards or downwards has not a similar significance—since this dullness in an upward direction merges into that due to the liver upon the right and into that due to the

spleen upon the left side, and in a downward direction is due to the fact that the lower border of the kidney, as a rule, lies within the pelvis, whose brim secures it from exploration by percussion. In the manual investigation of a suspected case of renal disease, it is to be remembered that there are many serious diseases of the kidney which are accompanied by no enlargement, and that in some again the size of the organ is decidedly diminished. In fat individuals *percussion* conveys no information whatever, since the accumulation of fat in the retro-peritoneal connective tissue will lead to dulness far out from the vertebral column. Nothing facilitates the local examination of the kidney more than a sufficient degree of leanness in the subject.

Among the *local symptoms* of renal disease acute pain does not take a prominent position. In by far the larger number of kidney diseases proper, pain is either absent altogether or is transitory, and of quite trivial import. It is as yet undecided whether the kidney itself is furnished with nerves of common sensation; but we know that considerable pathological changes may progress in the substance of these organs and be totally unaccompanied with pain. Though acute pain is not common, patients usually describe what they feel as a dull, wearisome, aching sensation of weight or tension about the loins on one, or sometimes on both sides of the spine; and if pressure be made in this locality—whether from behind in the lumbar region, or from in front through the abdominal walls—more or less tenderness is elicited. A further feature of this pain is its exacerbation by any blow or shake of the body in running or moving about, or by the jarring effects of the motion of a vehicle. A peculiarity about renal pains which has been long observed, is that they are often referred to the groin, that they are reflected along the distribution of the crural nerves, and that in males they run down the spermatic nerves, producing a contraction of the cremaster muscle and retraction of the testicle close up to the inguinal canal. The renal plexus which accompanies the branches of the artery into the fissure of the kidney sends numerous filaments to the spermatic plexus, which is probably the sympathetic connexion between the testicle and the kidney.

The principal source of direct information upon the condition of the kidneys is derived from examination of their proper excretion; therefore, an acquaintance with the quantity and quality of their output is of the utmost consequence, in order to arrive at a correct diagnosis or to furnish an opinion on the probable progress and ultimate issue of the case. The urine secreted in the kidneys is a true excretion, being a substance incapable of further use in the organism, and whose retention by it would be hurtful. It serves to carry out of the body certain ultimate products of the oxidation of nitrogenous substances as well as the excess of water. When a profitable examination of the urinary excretion is contemplated,

the first, and absolutely necessary, condition of analysis is, that the specimen to be submitted to examination should be taken from the total urine of twenty-four hours, scrupulously collected in a clean vessel. This essential, but most difficult, condition will be best fulfilled if the physician can succeed in convincing the patient of the importance of aiding him in the task. Especial pains will then be taken to guard against any urine being lost at stool, and some mechanical contrivance will be adopted, rendering the separate collection of the urine passed on these occasions feasible. An examination of a specimen of the twenty-four hours' quantity of urine should include a notice of its *quantity*, *colour*, *general appearance*, *specific gravity*, *chemical composition*, and the *characters of its sediment*. In reference to the *quantity* of urine, although it is well known to vary in sound healthy persons subjected to different circumstances, its actual fluctuation rests within certain well ascertained limits—subject, however, to idiosyncrasies. A number of careful observations have established a certain mean average daily urine excretion for any individual—called by Vogel his “individual urinary capacity.” According to Vogel, the mean average quantity for a thoroughly sound adult may be reckoned at from 1,200 to 1,400 cubic centimetres (42 to 49 fl. ozs.) for those who drink moderately, and from 1,400 to 1,600 cubic centimetres (49 to 56 fl. ozs.) for persons who drink freely; and it is by this standard, as the best available, you must compare the twenty-four hours' quantity you note, inasmuch as it is most improbable that you will have previously determined the urinary capacity of the individual case in question. The *colour* and *general appearance* of the urine may suffer notable alteration in kidney disease, and to determine this point it is necessary to collect it in clear, colourless glass vessels, and to study these. The colour of urine varies with its state of concentration; it is darkest in the concentrated morning-urine (*urina sanguinis*), and lightest in that passed after the plentiful ingestion of fluids (*urina potūs*). As a rule the colour of the urine indicates the amount of urine pigment excreted, and the quantity of urine pigment formed depends upon the capillary interchanges throughout the body and the destruction of red blood-colouring matter involved therein. Recent observations show that it is probable that a part, if not the greater portion, of the urine pigment emanates from the bilirubin of the gall, and it is considered as certain that the quantity of bilirubin formed may be accepted as a measure of the amount of destruction that has taken place in the colouring materials of the blood. As a general rule the colour of a scanty urine is more marked than that of a copious one, obviously because in the former case there is a smaller amount of urinary water to dilute it; yet, in renal disease, in spite of scanty secretion, we usually find the colour of the urine very pale. This is so because in most renal affections the blood becomes very poor indeed—oligocythæmia prevailing for the most part—and then both poverty of blood and

excess of water in the blood, tend to produce a paler urine than would appear in health. The *haziness* often noticed in the urine in renal disease is due to the fact that the urates contained in a highly concentrated and also highly albuminous urine separate themselves somewhat peculiarly in the form of granular amorphous particles, diffused throughout the fluid; they do not sink as a sediment, leaving a moderately clear supernatant stratum above them, as in non-albuminous urine, but maintain a cloudiness or misty appearance which is pretty equally opaque from top to bottom.

The *specific gravity* of the urine, which is the relation of the solid content to the watery solvent, is of the greatest importance in the diagnosis of kidney disease, and the simplest and quickest plan of taking it is to employ the graduated urinometer. The urine secreted and passed at different times within the same twenty-four hours, by a perfectly sound man, is well known to differ in density and, of course, in specific gravity. Nay, even by ingenious experiments, it has been proved that the strata of urine, lying, as they do in the full bladder of a healthy person, one superposed upon the other, differ from each other in their specific gravity in the most astounding degree, according as they are secreted at different intervals of time—ranging from 1018·5 to 1001·5. It is therefore most necessary that the specific gravity, if it is intended to be an approximation to the normal urine density of the individual, should be determined from a specimen of the entire secretion of the twenty-four hours carefully collected.

The *reaction* of the urine is normally acid; the acid reaction results for the most part from the contained acid sodium phosphate (Liebig). As a general rule even diseased kidneys furnish urine that has an acid reaction, yet the entire urine collected for twenty-four hours very constantly shows an alkaline reaction even though proved to have been acid when freshly passed. It is most probable that the urea in highly albuminous urine—and, less frequently, in non-albuminous—undergoes ammoniacal decomposition. After some time (which is shorter the higher the temperature) decomposition sets in, owing to the organic germs which the urine receives from the atmosphere. In this process urea is converted into ammonium carbonate, the reaction becomes alkaline (“alkaline fermentation”), a putrefactive odour appears, and precipitates of ammonium urate, ammonio-magnesium phosphate, &c., are formed, with the development of fungi and infusoria.

In the *chemical analysis* of the urine the subjects to which special attention is directed in kidney disease are the *urea* and the *albumen*. A knowledge of the content of urea is valuable, because it establishes the depuratory capacity of the kidneys and enables us to estimate the degree in which they suffice to purify the economy from its nitrogenous waste; while a knowledge of the quantity of albumen contained in the urine

often enables us to make an exact diagnosis of the nature of the special malady. This may be the place to remark that urea is the chief ultimate product of the oxidation of nitrogenous bodies, that part of it is pre-formed in the blood, but some of it does not, in all probability, appear until the kidney is reached. The urea and other nitrogenous substances which are present in the urine may be regarded as the slag or dross of the interstitial waste of the body, and are the materials whose retention in the system renders renal disease so dangerous. Its quantity, which ranges widely even in healthy persons, varies—first, according to the total sum of nitrogenous materials contained in the body (individual weight); secondly, according to the quantity of nitrogenous material ingested (food); and, lastly, according to the activity with which processes of oxidation are carried out (work done). As the quantity of urea furnished by the urine is not derived alone from the nitrogenous matters taken as food into the system, but is also the product of capillary interchanges that take place throughout the organism, it is found to be increased by any febrile disturbance that may quicken these capillary interchanges; in point of fact the quantity of urea excreted is considerably raised in fever, when little or no food at all is taken. In considering the question how much urea the kidneys should excrete in twenty-four hours, in order that they may fulfil their depuratory functions completely, there must be taken into consideration the body-weight of the individual, the quantity and quality of the food, and the presence or absence of febrile movement. Vogel states that a healthy adult, living generously, excretes as a mean average of urea in his urine, in twenty-four hours, from 25 to 40 grammes (385·80 to 617·28 grains). The Rev. Professor Haughton, from a number of most carefully-conducted experiments, has arrived at a result almost the exact mean between 25 and 40 grammes—viz., 32·4 grammes (500 grains). Individuals who are fasting and taking no alcohol may for a long time pass no more than from 8 to 10 grammes of urea per diem (123·45 to 154·32 grains). A woman of twenty-eight years of age, whom Bartels was attending in her first pregnancy for ceaseless vomiting for twenty-five days, during which he had her urine analysed, passed on an average only 8·84 grammes (136·418 grains) of urea daily. Even when total abstinence is maintained, healthy kidneys continue to excrete urea as long as the person lives.

The most important symptom towards making a diagnosis in far the larger number of cases of renal disease is the secretion of albuminous urine. To distinguish the albumen it is sufficient, in all ordinary cases, to heat the urine up to boiling point, which coagulates sero-albumen if only the urine itself be acid and have been rendered clear by previous filtration. Neutral or alkaline urine must be rendered acid before the operation by the addition of nitric acid. The presence of albumen in the urine is not indicated by any special microscopic characters.

A specimen of albuminous urine, clear or previously filtered, heated in a test-tube over a spirit lamp, becomes turbid at a temperature of from 167° to 176° Fahr. The coagulation commences at the surface of the fluid, and then extends gradually downwards through the tube. Cases, however, are frequently met with, in which a precipitate is formed on boiling the urine (particularly if the urine is only slightly acid or neutral), but in which, nevertheless, no trace of albumen is present. Such a precipitate consists of phosphatic earths, which in slightly acid urine are generally held in solution by the free carbonic acid. On the expulsion of the gas by boiling, the phosphates are precipitated in a flocculent form, and can then scarcely be distinguished by the eye from coagulated albumen. All doubt as to the nature of the precipitate is immediately removed by the addition of a few drops of hydrochloric acid to the urine. If the precipitate consists of phosphates it will immediately disappear and leave the fluid clear, but if of albumen, it will remain unchanged. This state of the urine occurs so frequently that the subsequent testing with nitric or hydrochloric acid should never be omitted whenever any slight turbidity results from boiling. The following is recommended as a simple and certain method of detecting small quantities of albumen in the urine; it is a modification of Heller's test:—Pour not less than half a drachm of *fuming* nitric acid into a test-tube; incline it, and then let a like quantity of the suspected urine trickle down *very slowly* to the acid, over the surface of which the urine, owing to its difference in density, will float without admixture. If albumen be present, a milk-white, sharply-defined, tolerably tenacious film will form in the exact plane of contact of the two fluids.*

In deciding the value to be attached to the presence of albumen in the urine as a symptom of renal disease, it is to be remembered that this substance may find its way into the urine from other causes than as a result of pathological changes in the kidney. Albumen mingled with the urine may acknowledge as its source the pelvis of the kidney, the ureter, the bladder, or even the urethra itself. Albumen is furnished from such extra-renal sources—either because the mucous linings of these urinary passages have become inflamed, when pus is sure to accompany it, or because some collection of matter has burst through into the urinary channels; for example, an abscess in the kidney itself, or in the prostate gland. The Pathological Museum of King's College contains a preparation in which an abscess, occupying the substance of the *psoas* muscle, has opened into the cavity of the ureter. In such cases the albumen met with in the urine represents only that which is furnished by the serum of the pus; and since the kidneys usually are acting normally in this state of things—namely, when the pus has found its way into the urine, and been thinned of course by mixing with it—we

* Andrew Clark in Lond. Hosp. Rep. Vol. I, p. 224.

find, as a rule, that the percentage quantity of albumen present is trivial, and that a sediment of pus corpuscles accompanies it—a sediment which betrays the source of the albumen plainly enough, and explains its small amount. Sometimes the albumen comes from both sources—from within as well as from without the kidney—for purulent inflammations of the urinary channels are occasionally associated with diffuse disease of the kidney structures, and then both affections are alike concerned in the production of albuminous urine. In such cases the microscope occasionally supplies the information we require; for if the so-called tube-casts are found in the sediment, besides pus corpuscles, we may decide with certainty that the albumen contained in the urine did not emanate alone from the purulent inflammation of the passages, but was furnished—at least in part—by some disorder of the kidney.

The Doctrine of Albuminuria.—Passing from the subject of albumen furnished by the urinary passages—extra-renal albuminuria—we have to deal in the diagnosis of renal disease only with *albuminuria renalis*—that is, the mixing of albumen with urine in the organs where the latter is being secreted, and at the moment of its secretion. Under normal conditions the secreting structures of the kidney do not allow of any transudation of the albumen of the blood serum. The combination of albumen with urine is, in every case of *albuminuria renalis*, evidence of the existence of pathological conditions, and is attributable, in every case, to some disturbance of the circulation, and to an increase of the normal blood pressure in the excreting vessels of the kidneys—since albumen cannot be forced through animal or other membranes except as the result of inordinately high pressure. The kidney consists of a gland structure of wonderful extent; the uriniferous secreting structure is about six times as large as the whole surface of the skin (according to Valentin), and is packed into the minutest possible space. Glancing for a moment at the mechanism of urinary secretion, we find that as the blood in the glomeruli is subjected to a high pressure on account of the resistance of the second capillary system on their distal side, a free filtration into the capsule must take place. Water, and those constituents of the blood which form true solutions (salts, urea, sugar, &c.), will therefore pass into the tubuli uriniferi. Albumen and other colloids which do not form true solutions, do not filter through except under an abnormally increased pressure. Any very decided increase of blood pressure in the Malpighian tufts causes a filtration of the less diffusible portions of the blood—albumen, fibrinogen, &c.—into the urine, and an increase above a certain limit leads to the appearance in it of blood (blood corpuscles), owing to the rupture of the vessels, or, perhaps, to diapedesis. It may be stated as a general proposition, that the passage of serum-albumen from the bloodvessels into the renal tubes of the kidney is, in every instance, proportioned either to an existing abnormal

increase of the blood pressure, or to an altered structure of the walls of the vessels, or to a combination of both these causes acting together. The capillary coils of the Malpighian tufts are the vessels of the kidney from which the watery part of the urine is secreted, and these may be regarded as filters of animal membrane which, under normal circumstances, never allow any transudation of the albumen of the blood serum. But the permeability of these filters, like that of the animal membranes employed in experiments outside the body, increases with the pressure employed, and it may come to pass in this way—viz., that the cells which form the covering of the capillary coils loosen and separate from each other under the strain to which the glomerulus is subjected, and admit of pores or passages forming in the epithelial network. In this way it becomes conceivable how the coats of the bloodvessels of the kidney may come to allow the transudation of the serum-albumen through their pores, without suffering further change of structure, directly the blood pressure bearing upon them exceeds certain bounds. This view will also explain the fact that kidneys which, during life, secreted albuminous urine, yet after death present no trace of histological alteration either in their cells or interstitial tissues. Thus, it comes to pass that perfectly healthy kidneys—solely in consequence of an altered state of blood pressure upon the vessels—can excrete albuminous urine, and thus it happens that albuminuria may arise as an entirely transitory symptom from abnormal elevation of the blood pressure, and pass off again as quickly as the cause from which it arose. On the other hand, if the cause abides, the albuminuria, too, may endure, or it may come and go, fluctuating with the varying grades of pressure which produced it. It seems, however, to be an almost constant rule, that when albuminuria is the result merely of undue pressure upon the vessels of otherwise sound kidneys, and is not dependent upon alterations in the coats of these vessels, the actual percentage of albumen held in the urine is but little—a result similar to that which is observed in the filtration of albuminous fluids under pressure outside the body, when the actual quantity of albumen which transudes under any great pressure is perfectly trivial compared with the amount contained in the fluid employed.

The immediate mechanical cause of the *albuminuria due to heart disease* closely resembles the process which takes place when the blood pressure in the renal veins is artificially increased. Persons who have serious valvular obstruction—especially those who have mitral stenosis and those who are affected with extensive muscular derangement of the heart—excrete urine which constantly fluctuates in its albumen content—being at one time albuminous, at another free from albumen, according as the cardiac lesion is more or less oppressing the general circulation of the blood. In such cases, when the pulse at the wrist falls to its lowest ebb of weakness, and the stasis of the venous circulation advances

towards established cyanosis, congestion of the emulgent veins of the kidneys takes place and the obstruction to the venous outflow presses first and most severely upon the interstitial capillary system, which experiences the full impact of an augmented venous tension; and from these capillaries, the network of which surrounds the renal tubules, emanate the relatively scanty albumen and blood which the urine contains in cases of heart disease with cyanosis, and which find their way into the urinary secretion after it has left the glomeruli and reached the tubules. In such cases—of cardiac albuminuria—the pressure is applied from the distal or venous side; in the cases of temporary or intermittent albuminuria referred to previously—due to increased arterial tension—the pressure was applied from the proximal or arterial (cardiac) side. In the cardiac albuminuria the albumen is squeezed through the interstitial capillaries; in the cases of abnormal elevation of the arterial pressure, it is forced through the coils of the Malpighian tufts, in which variations of arterial pressure are principally felt. In obstruction to the renal circulation arising from heart disease, it would be most rare and exceptional for a venous congestion to reach backwards up to the tufts themselves, on account of the very favourable mechanism which the vasa efferentia present for obviating such an occurrence. In cases of albuminuria due to heart disease, the albumen disappears from the urine as soon as the arterial pulse becomes stronger and the cyanosis less marked, and as soon as larger quantities of a more watery urine are excreted.

Transitory albuminuria has been observed after epileptic attacks, in which, too, the albumen was far more copious after a severe than after a slight or abortive fit. This *epileptic albuminuria* does not seem to be attributable to the violent convulsive phenomena of the seizure, since the same albuminous urine, although in less degree, follows upon the so-called epileptic vertigo, in which no convulsion whatever occurs. The explanation seems to be that anything which disturbs the action of the heart and circulation, and induces considerable venous congestion, will produce albuminuria.

There is also a temporary form of albuminuria, and one which does not depend upon any structural change in the kidneys, very frequently met with in those who are suffering from some marked febrile movement. This *febrile albuminuria* occurs in the course of severe angina, in pneumonia, in the specific continued fevers, in the congestive stage of the acute exanthemata, in pyæmia, &c. As the fever declines, and as soon as defervescence sets in, the albumen, which is usually only sparing in quantity, disappears from the urine as suddenly as it came. The process of filtration by which the urinary secretion is effected at the Malpighian bodies, is conducted under entirely abnormal conditions in the subjects of acute fever, whose temperature stands persistently above 104° Fahr., for elevated temperatures relax the walls of the blood-vessels or make them

yield more than they otherwise would to the hydrostatic pressure of the blood streaming through them. Excessive heat of the body seems to act exactly in the same way as section of the vasomotor nerves of the kidney, which operation is followed by an overflow of albumen into the urine; and it is a question whether this relaxation of the walls of the vessels follows because of some perversion of the nerve influence governing the muscular elements of the arteries, consequent upon the high temperature, or whether it is the elastic element which thus loses its faculty of resistance. Mr. David Newman's* experiments relating to the functions of the kidney show that elevation of the temperature of a fluid assists its transudation; and, when a solution of albumen is used, the higher the temperature the more closely does the filtrate resemble the original solution. It is not every patient whose temperature rises above 104° Fahr. who will secrete albuminous urine, and it is also extremely rare for febrile albuminuria to persist after the fever has remitted. This state of things is also to be entirely separated from the diffuse nephritis which occurs in diphtheria and scarlatina, since in these diseases there is a specific implication of the kidney, quite independent of the fever accompanying these complaints. *Post mortem* examination of the subjects of febrile albuminuria discovers, for the most part, no hyperæmia of the kidneys.

There is another form of transient albuminuria called *alimentary albuminuria*, in which the urine is temporarily rendered albuminous by the use of highly albuminous food, as when a large quantity of white of egg, or egg-albumen, has been swallowed after fasting. The urine of animals also has been found to contain albumen when that substance has been injected into the veins or the cellular tissue. It has been assumed that raw white of egg, or egg-albumen, can be absorbed directly and unchanged from the stomach and be excreted again at once by the kidneys, while coagulated albumen can only reach the blood-vessels after previous digestion and conversion into peptone. Dickinson^b remarks that alimentary albuminuria is practically unknown, save as the result of experiment, but I have met with the case of a young man about to be married who was advised to eat eggs freely, to fortify himself for the coming event. He had come to consume four dozen eggs daily—many of them raw—when he was obliged to desist in consequence of having rendered his urine albuminous. I regret that I am unable to put my hand on my notes of the case, which was interesting in a physiological point of view.

With regard to an albuminuria of purely nervous origin—*neurotic albuminuria*—Stockvis, of Amsterdam, in his elaborate researches on the subject of albuminuria, arrives at the conclusion that paralysis of the vasomotor renal nerves may bring about some disturbance of the circulation and thereby influence the production of albumen in the urine. He

* Jour. of Anat. and Physiol. Vol. XII. P. 628.

^b Dia. of Kidney. 1877. P. 248.

further informs us that the causes producing paralysis of the vasomotor renal nerves are not invariably to be found in the immediate neighbourhood of the kidneys, and directs attention to the physiological experiments which go to prove that injuries of the medulla oblongata, the peduncles of the cerebellum, and of the cerebrum, &c., can excite albuminuria. Professor Fischer, of Breslau, in a lecture on concussion of the brain, describes transitory albuminuria as one of the very common symptoms; and, again, the occurrence of albuminuria in cerebro-spinal meningitis has been put forward by some writers as a constant symptom of this complaint.

The cases of temporary albuminuria which we have been considering under the heads of cardiac, febrile, alimentary, and neurotic albuminuria, were illustrative of conditions in which the presence of albumen in the urine is the outcome principally, if not solely, of vascular disturbance causing increased pressure in the circulation through the kidneys. We have now to contrast them with a different class of cases in which albumen in the urine is the prominent symptom, owing to the fact that the kidneys of those furnishing it have suffered a notable alteration of structure. It is still, however, the renal blood-vessels which are principally involved, and the symptom is the result of altered conditions of blood-pressure located in the kidneys. There is as yet no demonstrable evidence that alteration of the epithelial cells lining the renal tubes can of itself produce albuminuria. It has even been observed that in spite of extreme fatty degeneration of the renal epithelium no albumen might be present in the urine. It is, then, not every disease of the kidneys that gives rise to albuminuria; for example, in the deposit of tubercle in these organs it is for the most part absent; and it is the experience of many that in carcinoma of the kidney the urine may remain free from albumen during the entire course of the disease. The albumen in localised affections of the kidney, as contrasted with the diffuse renal diseases, is, apart, of course, from the accident of an abundant hæmorrhage, always scanty, evidently because a small vascular territory only admits of its escape. In such localised diseases it is only a portion of the secreting apparatus which excretes albuminous urine, which urine cannot be derived from the local deposits themselves, for just the spots they occupy are either completely destroyed or have been rendered functionally inactive. The lodgment of a new growth in the renal structures, by compressing or blocking up the blood-vessels in its immediate site, gives rise to a collateral hyperæmia and congestion of the neighbouring vessels, while, at a little distance off, the renal substance and its vessels may be found perfectly normal.

The albuminuria in cases of simple contracted kidney (cirrhosis of the kidney, granular atrophy) is due to increase of blood-pressure in the Malpighian bodies. In such cases a larger or smaller portion of the

glomeruli together with their appendages waste away as the process of contraction advances, and yet the remainder of the secreting vessels, with the corresponding tubules and the epithelium lining these, is found in a perfectly normal state. But the pressure of the blood upon the vessels which remain must exceed what is normal, since these have to receive the full current from a large arterial trunk, of which a number of branch channels are closed. The hypertrophy of the left ventricle of the heart, which, as a rule, accompanies the process of contraction in the kidneys, lends additional force to the already increased pressure of the blood in the renal arteries. The character of the urine passed from contracted kidneys is explicable by the conditions under which it is secreted. Although the secreting surface is diminished, yet in a given time an unusually large quantity of urine is secreted, for the filtration through the glomeruli being conducted under an accelerated blood-current and under increased pressure, the rapidity of secretion is proportioned to both these conditions. The fluid filtered through Bowman's capsules, under pressure at its back, drives that which is before it through the renal tubules into the excretory channels in a shorter than ordinary period, so that there is less time left for any material alteration of the original filtrate to take place by means of diffusion and absorption into itself of the specific elements of the urine as furnished by the renal epithelium. The watery urine of persons with contracted kidneys contains, as a rule, small quantities of albumen, and is, indeed, a filtrate of serum-albumen driven under abnormally high pressure through the membranous walls of the capillaries in the glomeruli. The albumen content of such urine is usually small, very rarely amounting to one-half per cent. of albumen; at times hardly one-half per thousand; and, in fact, there are cases of advanced contraction of the kidneys furnishing urine some portions of which only now and then contain albumen, or for a long time contain none at all. In this form of disease the albuminuria almost entirely depends upon the blood-pressure. In many patients it may be observed that they invariably pass albumen while out of bed and going about, but none while quiet in bed, because the whole arterial blood-pressure, and, consequently, that upon the renal branches, is increased above the normal by exercise.

In most cases of amyloid disease of the kidneys the urinary secretion conducts itself just in the same manner as in simple contraction—that is to say, it is watery, of low specific gravity, and contains, constantly, small quantities of albumen. In such cases, also, the diffusion of albumen into the urine seems due to abnormal increase of blood pressure upon the glomeruli. The pathological examination of amyloid kidneys teaches us that this degeneration, as a rule, takes place first—and most especially—in the capillaries of the glomeruli, whose walls become thickened—reaching in many of them to the extent of actual obliteration of their channels—so that during life they must be as impermeable to the blood

stream as they are after death to the entry of an injection fluid. But the parts of the filtering apparatus which remain pervious must, as in the simple contracted kidney, receive the whole mass of the blood stream which flows through the renal artery. The filtration of urinary water in the amyloid degeneration continues to take place through the remaining Malpighian tufts which still retain their diffusing powers, and this under almost exactly the same conditions as obtain in the simple contracted kidney—*i.e.*, under abnormally increased pressure. The consequence of this is albuminuria. But whereas in the large proportion of cases of amyloid degeneration the daily measure of urine excreted does not exceed what is normal, while it does so, as a rule, in the contracted kidney, this difference depends plainly upon the circumstance that in the amyloid renal disease there is no general blood tension throughout the whole arterial system, since in this degeneration that hypertrophy of the left ventricle, which obtains usually in the other form of kidney disease, is not present. There are, however, cases of amyloid degeneration of the kidneys in which the urine presents very different characters from those which have just been described—the quantity of secretion, for instance, being abnormally small, its specific gravity high, and its albuminous content enormously large. In such cases the difference may depend upon an altered permeability of the walls of the vessels produced by the degeneration, for the essential element in the lardaceous or amyloid disorder is a change in the vessels in virtue of which they become unnaturally permeable, or apt to give exit to portions of their contents.

We must now dwell for a moment on the albuminuria so often observed after severe attacks of cholera, and which seems comparable with that produced in dogs, experimentally, by compression of the renal arteries. In cholera there is a more or less complete interruption of the arterial blood stream, since, as is well known, in the pulseless asphyxia stage of cholera (*stadium algidum*) even the larger arteries, which have been divided with the object of letting blood, have been found completely empty. It is also known that the blood is excessively inspissated in cholera disease, owing to the drain of water from the body by vomiting and purging, and that the conditions which prevail are particularly favourable for the agglutination of the blood corpuscles; it is also to be remarked that the circulatory arrangements in the kidneys present peculiar obstacles to the blood stream such as obtain in no other organ in the body, and therefore that a complete arrest becomes more easy within the vessels of the Malpighian tufts than in the capillaries elsewhere. Now, an explanation of the *post cholera albuminuria* is afforded by Cohnheim's researches into the consequence of a complete interruption of the circulation through various organs in the mammalia. He found that when the blood current was interrupted for some little time, the circulation did not become established again when the interruption

was removed, apparently because the vitality of the walls of the vessels had been annulled. When Cohnheim tightly ligatured, upon a piece of leather, the artery and vein of a kidney, and after allowing from one and a-half to, at most, two hours to elapse, cut the ligature, the previously pale-gray, violet, collapsed-looking organ swelled up in a few hours enormously, while its tissues became infiltrated with blood. The kidney then became more than double the size of that on the opposite side, and appeared dark red-coloured on its surface and throughout its substance. Looked at under the microscope all the capillaries and other vessels of both cortical and medullary portions were seen abundantly filled with blood, while a moderate amount of blood-cells were found in the interstitial tissues and the interior of the renal tubules, especially the straight ones. The urine, too, was bloody. It is highly probable that in the stage of reaction, after severe attacks of cholera, the blood-vessels of the kidney will be in almost exactly the same condition as those of the animals in Cohnheim's experiments, in whom the renal arterial blood-stream was stopped for a short time. Then, when the circulation, after its disturbance by the cholera attacks, becomes re-established, blood serum transudes, the blood corpuscles emigrate through the capillary walls, and albumen appears in the urine. The albuminuria of cholera subsides within a few days if the interruption of the circulation has not been protracted over too long a period; but after the more severe attacks of cholera we find that only scanty quantities of bloody urine are for some time excreted, or else, with the establishment of the reactionary stage, no urine at all is secreted, and in such cases, after death, extensive bloody infarctions are discovered in the kidneys.

[*To be continued.*]

NOTE.—The text of the essays of Professor Carl Bartels, of Kiel, and Professor Wilhelm Ebstein, of Goettingen, in Volume XV. of the "Cyclopædia of the Practice of Medicine," edited by Dr. H. Von Ziemssen, has been followed as closely as possible, with additional notes from all the best authorities on the subject.

A. W. FOOT.

CLINICAL RECORDS.

MEATH HOSPITAL, DUBLIN.—Being the substance of a Clinical Lecture delivered on Tuesday, November 13th, 1878, by **ARTHUR WYNNE FOOT, M.D. ; F.K.Q.C.P. ;** Senior Physician to the Hospital.

I WISH to draw your particular attention to the case of the boy, aged 17, who was admitted on Saturday last, with well-marked rheumatic gout in many of his articulations.

The elbow-joints, both hands, both knees, and each foot are affected, symmetrically so, and in a similar manner. You will observe that there is no pain complained of, there is no redness or swelling of the affected parts, and the boy is quite free from fever or any constitutional disturbance. He has come to Dublin on account of the condition of his hands, as he is unable to follow the trade he was learning—that of plastering—being unable to grasp the trowel with sufficient force to spread mortar properly. The hands, you see, are emaciated and chilly, and deformed in a peculiar manner, which corresponds exactly to a drawing in Mr. Adams's* plates. The metacarpo-phalangeal articulations are enlarged and knobby, the first or proximal phalanges are flexed, the median phalanges are extended in a rigid manner, while their articulations with the first phalanges form angles salient anteriorly towards the palms, while the third or ungual phalanges are flexed. The hands are not, as is so often the case, adducted towards the ulnar side. The elbow-joints are restricted in extension from enlargement of the olecranon processes; while the knee-joints are limited in flexion, so that he cannot jump, as in doing so he should "gather up" his legs; the patellæ are rigidly fixed. He has been in the state you see him for three years and four months, at which time he suffered from pains in his joints for eighteen months, though not confined to bed. The attack of pains he attributed to bathing. There is no family history of a tendency to the disease, and he met with no injury. The rarity of this disease in youth was known to Hippocrates, who observes, "*puer podagrâ non laborat ante Veneris usum;*" but Mr. Adams says he has seen it in numerous patients under the age of twenty as a general or constitutional disease, affecting many of the joints simultaneously. When the disease has had a constitutional origin, the law of symmetry, which so usually prevails in blood diseases, is to be found governing its phenomena. In this case,

* Illustrations of Rheumatic Gout, 2nd edition, p. 24.

as in the majority of those which precede from some constitutional taint, we find that the general chronic affection was immediately preceded by an attack of rheumatic fever, from the lingering remains of which the chronic rheumatic arthritis evidently sprang.

The treatment which you have seen laid down for him is partly local and partly constitutional: the former aims at the improvement of his hands, on the utility of which his prospect of a livelihood depends, and consists in steeping them frequently in very hot water, and then diligently rubbing in cod-liver oil; while internally he is to take cod-liver oil on lemon-juice three times a day, and the following mixture, viz. :—

R.—Lithiæ Citrat.	.	.	.	gr. 40
Potassæ Citrat.	.	.	.	„ 120
Potassii Iodidi	.	.	.	„ 60
Aq. Chloroformi ad ℥viiij.				Sum. ʒss. ter die.

He is also to have a hot bath daily, and, at his own request, is not to be confined to bed. From my experience in similar and more chronic cases—of the benefit of the inunction of cod-liver oil after maceration of the hands in very hot water—I anticipate some improvement, and on a future occasion we will review his case and condition.

There are at present under your observation two well-marked forms of *Eczema*, which illustrate the three varieties of the affection; and although the disease is the most common of all skin diseases, they present many points of interest. In the man, aged 21, in No. 15 ward, the disease has symmetrically affected both calves for the last six months. The right calf was much more severely affected than the left. It was the variety called *eczema rubrum*, or inflammatory *eczema*; and you will have remembered that the first topical application which at all effectively allayed the intense hyperæmia—relieved the itching and dried up the ichorous discharge—was a lead lotion applied on strips of linen and confined by gutta-percha paper, and that when the disease seemed quite stationary, a most marked improvement followed the hypodermic injection daily by Mr. Lecky, the clinical clerk, of five minims of liquor arsenicalis. The injection was made into the calf, at the margin of the diseased part, while at the same time he was taking five minims thrice a day of the same preparation in a mixture. In the case of the young girl in No. 13 ward, the variety of the disease was *eczema simplex* on the arms, forearms, and fingers, while on the chin and part of the lips it was the variety called *E. impetiginodes*, in which the pus formation is not accounted for by the degree of inflammatory action, but is clearly dependent upon the existence of a pyogenic habit of body, such as you might expect in a blue-eyed, flaxen-haired blonde, such as the young girl is. Her arms which, on admission, were “red, wet, and itchy”—the three typical symptoms of *Eczema* according to Devergie—were dried

up by lead lotion applied as in the former case, afterwards glycerine of tannin was painted on them. As soon as the discharge lessened and the stage of squamation came on, she began to use Startin's camphor ointment—Camphoræ, gr. 10; Glycerini, min. x.; Adipis, 3j, ft. ung.—which corresponds to the camphor ball so popular as a means of soothing the skin. This girl, now aged 14, has always had a delicate skin. As a baby she had a bad attack of eczema of the scalp; she had it again for a long time two years ago, and the present attack has lasted since last January. The repeated hyperæmia of the upper extremities, probably, accounts for the great development of hair which, though of a light colour, disfigures her arms, and which, no doubt, she will be asking to have removed when the eczema is cured.

The great principle in the treatment of eczema is, in the earlier stages of the disease, to employ none but soothing or sedative applications. The stages through which typical eczema runs are—erythema, vesiculation, ichoration, pustulation, and squamation. In the earlier stages you have to moderate inflammatory action. When the stage of squamation is reached the acuteness of the disease is over; it is approaching cure. You have chronic inflammatory thickening to deal with, and the skin must be roused to a healthy action by stimulating applications, of which camphor is an agreeable and useful one. Hence it is that, whenever you proceed to treat a case of eczema, you should first ask yourselves—Of what variety is it? and at what stage is it? or you will be likely to become converts to the doctrine of the extreme danger of curing any tedious skin disease.

I should direct your attention, before you forget them, to two medical operations performed in the past week by the practising pupils in charge of the cases. One was the firing—by Mr. Edward Lennon—of the patient in No. 15 ward, who was suffering from rheumatic myalgia of the left shoulder. The operation cured him immediately and enabled him to return at once to his work. This man, you recollect, was an attendant on a steam-engine, and in the recent frosty weather he caught cold, which visited him as sciatica in the right hip, neuralgia in the head and neck, and stiffness and pain in the left shoulder muscles. He was not relieved by a hot bath and a mixture of iodide of potassium and tincture of belladonna—the latter of which is very good for vague muscular pains. Mr. Lennon then dexterously fired the places about the left shoulder-joint which were indicated as the seat of pain. The next day he was much better and able to put his left hand to the back of his head, which he could not do before, and gladly consented to have the operation repeated. This admirable remedy for rheumatic or muscular pains was brought under the notice of the profession by Sir Dominic Corrigan in the *Dublin Hosp. Gazette* for 1st March, 1846, and hence the instrument is familiarly known as “Corrigan's button.” You have seen it used here

with good effect for that common and troublesome pain in females known as infra-mammary pain; it is also excellent for ovarian hyperæsthesia, and many other forms of pain besides lumbago and sciatica, for which it is so commonly employed. Mr. Lennon's patient was able to go back to his work two days after having been "fired."

Mr. Gordon was equally successful in a much less promising case—that of the little boy, aged 13, who was ill for two years with a chronic limited effusion in the cavity of the peritoneum, and whose scrotum had become so cedematous as to equal a cocoa-nut in size, and to cause painful chafing, by friction against his thighs. Mr. Gordon made four punctures with a lancet at each side of the raphe so judiciously that no untoward event happened. Coincidentally with the subsidence of the genital œdema the ascites disappeared, the pain and swelling of the stomach departed, and he became able to walk about as well as ever. I particularly allude to these two matters to show you that the gentlemen in charge of cases have the fullest opportunities and encouragement to do with their own hands anything which is conducive to the welfare of the cases they take charge of.

BRONCHIAL CATARRH FROM BROMIDE OF POTASSIUM.

ONE of the occasional, unpleasant results of large or prolonged use of bromide of potassium is an obstinate bronchial catarrh, characterised by tenacious mucus and a "hard" cough. In the *Memorabilien*, Dr. G. Stille states that at times this may lead, in weak persons, to serious, even fatal results; and he recommends, on the appearance of this symptom, to suspend the drug. To counteract the other unpleasant symptoms, he has found the simultaneous exhibition of arsenic successful; but it was powerless against the catarrh.—*Medical and Surgical Reporter*, Oct. 12, 1878.

SUBCORACOID DISLOCATION OF THE HUMERUS CAUSED BY SNEEZING.

IN *The London Medical Record* for November 15, 1878, Dr. Richard Neale remarks that Mr. J. Westmoreland, in *The Lancet*, August, 1878, p. 202, adds another to the list of injuries occasionally produced by sneezing. A publican, resting his left arm, during lateral extension, loosely on some spirit barrels, took a pinch of snuff from a friend, and sneezed violently, when his left shoulder slipped out of place. Dr. Neale observes that several cases of fracture of the ribs, and one case of dislocation of the crystalline lens, from sneezing, have been reported in the journals (vide *Medical Digest*, New Sydenham Society, section 598; 3).

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, M.D., F.K.Q.C.P.

VITAL STATISTICS

*Of Eight Large Towns in Ireland, for Four Weeks ending Saturday,
November 2, 1878.*

Towns	Population in 1871	Births Registered	Deaths Registered	DEATHS FROM ZYMOTIC DISEASES								Annual Rate of Mortality per 1,000 Inhabitants
				Small-pox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Fever	Diarrhoea		
Dublin, -	314,666	627	591	25	1	27	1	11	30	20	24·4	
Belfast, -	182,082	497	297	—	—	38	—	6	13	11	21·3	
Cork, -	91,965	1178	1152	—	—	1	—	7	5	9	123·7	
Limerick, -	44,209	105	69	—	—	—	—	2	1	4	20·3	
Derry, -	30,884	47	35	—	—	—	—	—	—	1	14·8	
Waterford, -	30,626	64	55	—	—	—	1	—	1	1	23·3	
Galway, -	19,692	28	41	13	—	—	—	—	1	—	27·0	
Sligo, -	17,285	18	28	—	—	—	1	—	1	1	17·8	

Remarks.

The rate of mortality was high in Galway, rather high in Dublin, Cork, and Waterford; moderate or low in the remaining towns. In London it was 20·5 per 1,000 of the population annually, in Edinburgh 17·2, in Glasgow 21·0, and within the municipal boundary of Dublin 24·8. Omitting the deaths of persons admitted into public institutions from localities outside the district, the mortality in the Dublin registration district was 23·8 per 1,000. The deaths from zymotics in Dublin were 137, compared with a ten-years' average of 134·6 in the corresponding period. There was a marked falling off in the fatalities from diarrhoea and whooping-cough, as compared with the preceding four weeks. Small-pox also was less fatal, while fever remained as before. Scarlatina caused 27 deaths, against 14 in the previous four weeks. Of the deaths referred to fever, 11 were due to typhus, 15 to enteric, and 4 to continued fever of undetermined type. The number of patients suffering from small-pox under treatment in the Dublin hospitals at the close of the four weeks was 47, or 28 fewer than on October 5. The epidemic of scarlatina in Belfast appears to be assuming formidable

proportions, nearly 13 per cent. of all the registered deaths being referred to this disease. Still more serious is the outbreak of small-pox in Galway, where 31·7 per cent. of the deaths registered were caused by this terrible disease. In fact, the deaths from small-pox in Galway (13) were only 4 less than those in London during the four weeks. Although the weather in Dublin was mild until after October 21, respiratory affections showed an increased fatality. The total deaths from them were 102, including 76 from bronchitis and 18 from pneumonia. The ten-years' averages in the corresponding period were—respiratory diseases generally, 85·9; bronchitis, 62·5; and pneumonia, 13·8 deaths.

METEOROLOGY.

*Abstract of Observations made at Dublin, Lat. 53° 20' N., Long. 6° 15' W.,
for the Month of October, 1878.*

Mean Height of Barometer,	-	-	-	29·693 inches.
Maximal Height of Barometer (on 2nd at 9 a.m.),	-	-	-	30·240 „
Minimal Height of Barometer (on 7th at 11 p.m.),	-	-	-	28·720 „
Mean Dry-bulb Temperature,	-	-	-	50·6°
Mean Wet-bulb Temperature,	-	-	-	48·4°
Mean Dew-point Temperature,	-	-	-	46·1°
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·313 inch.
Mean Humidity,	-	-	-	85·5 per cent.
Highest Temperature in Shade (on 6th),	-	-	-	65·6°
Lowest Temperature in Shade (on 30th),	-	-	-	32·9°
Lowest Temperature on Grass (Radiation) (on 30th),	-	-	-	28·9°
Mean Amount of Cloud,	-	-	-	51·6 per cent.
Rainfall (on 16 days),	-	-	-	2·095 inches.
General Direction of Wind,	-	-	-	S., W., & N.W.

Remarks.

This was an averagely fine October. During the first three weeks the mean temperature was about 4° in excess of the average; but a cold period set in on the 21st, and continued to the end of the month—the deficiency in mean temperature of the last eleven days amounting to about 6°. After a few fine mild days at the beginning of the month, a very stormy period commenced on Sunday, the 6th, when an extensive area of low pressure lay off the W. coasts of Ireland and Scotland. In Dublin the thermometer had not been below 59° in the previous night. On the 7th very wet and tempestuous weather prevailed. At 11 p.m. the barometer marked 28·720 inches. On the 9th another disturbance caused the barometer to fall to 28·729 inches in Dublin. Three days later the mercury had risen 1½ inches—to 30·234 inches. On the 15th the weather became quiet and fine, an anticyclone lying for several days over Denmark and the North Sea, and causing moderate southerly winds

and a high temperature in the United Kingdom. On the 21st this "fine weather" system broke up, and the weather underwent a complete change. At 8 a.m. of this day a large depression had its centre near the Hebrides, while another disturbance was fast approaching the S.W. of Ireland. Heavy rains, followed by a rapid fall of temperature, accompanied these disturbances. From this time to the end of the month an area of low atmospherical pressure occupied the position of the anticyclone noted above, and numerous subsidiary bourrasques travelled at first from W. to E. and afterwards from N.W. to S.E. across the British Islands, bringing in their wake keen polar winds and wintry weather. The mean temperature of the last eleven days was only $42\cdot8^{\circ}$ in Dublin—being the coldest weather experienced in October since 1873. "Festooned" clouds were seen between 4 and 6 p.m. of the 5th. A lunar rainbow appeared at 9 p.m. of the 9th. Solar halos were observed on the 16th, 17th, and 25th. Hail fell on the 24th, and at 3 30 p.m. of the 26th several peals of thunder were heard, while there were occasional flashes of lightning on that evening and on the night of the 31st. Nearly an inch of rain ($\cdot965$ inch) fell on the 7th.

PERISCOPE.

Edited by G. F. DUFFEY, M.D., F.K.Q.C.P.

RESEARCHES ON THE COLOURING MATTER OF THE BLOOD.

SOME valuable contributions to our knowledge of the colouring matter of the blood have recently been made by Hoppe Seyler, to whom we owe so much of our information on this important subject. He finds that reduced hæmoglobin (or as he prefers to call it simply, hæmoglobin) is a test of the most extreme delicacy for free oxygen. If, by a suitable apparatus, a solution of hæmoglobin is brought into contact with an atmosphere containing such a small quantity of free oxygen that the tension of this gas at ordinary temperature equals only $1\cdot5$ mm. of mercury, the appearance of the two well-known absorption bands in the solution manifests the presence of the oxygen. The tension of $1\cdot5$ mm. Hg. corresponds, at ordinary atmospheric pressure, to a gaseous mixture which contains only $0\cdot191$ vols. per cent. of oxygen. Since 1 cc. of the gaseous mixture, and $0\cdot5$ cc. of the hæmoglobin solution suffice for the experiment, $0\cdot002$ cc. of oxygen can be detected by this method; or if the pressure be raised an atmosphere, as can be readily done, so minute a quantity as 1 cubic millimeter of oxygen can be made manifest.

If a solution of oxyhæmoglobin be sealed up in a tube, or other vessel, with only a small quantity of air, it is soon, by the process of putrefaction,

deprived of its loosely-combined oxygen, and the spectroscope shows no longer the two bands of oxyhæmoglobin, but the single band of reduced hæmoglobin. In this condition it remains, without undergoing further change, for an indefinite time, completely resisting all putrefactive decomposition. Hæmoglobin, then, which is so readily decomposed by acids, alkalies, high temperature in presence of water, is unaffected by putrefaction, differing markedly from albumin, which in sealed tubes decomposes with formation of CO_2 , NH_3 , leucin, tyrosin, &c. The action of the pancreatic ferment agrees with that of the putrefactive bacteria, and this agreement is borne out by the complete resistance which hæmoglobin offers to the action of trypsin, while the presence of free oxygen is not necessary for the action of this ferment on albumin. Carbonic oxide hæmoglobin resembles hæmoglobin in completely resisting the action of putrefaction or of pancreatic digestion. This peculiarity may be very useful for the detection of poisoning by CO, and the blood from such cases may be preserved for years without undergoing change. Hæmoglobin may be used as a test for CO, as for free oxygen. The degree of delicacy of the test has not yet been determined, but it must be even greater than in the case of oxygen.

A very interesting series of observations were made on the free oxygen of the secretions of the different glands, using a solution of hæmoglobin as the test. The solution and the secretion as it flowed from the duct were brought into contact, the air being excluded. The saliva of the parotid and the submaxillary glands contained free oxygen, and the spectroscope showed the formation in the experimental tube of oxyhæmoglobin, while the bile and the urine produced no change in the hæmoglobin, and consequently contained no free oxygen.

A series of analyses of the crystallised oxyhæmoglobin of the horse gave the following mean composition:—

C.	54.87
H.	6.97
N.	17.31
S.	0.65
Fe.	0.47

The nitrogen, which was estimated by combustion with copper oxide, comes out much higher than in the former analyses of the hæmoglobin of the dog, guinea pig, goose, and squirrel. In these the estimation was made by the method of Will Varentrapp.

When oxyhæmoglobin is acted on by ozone, by putrefaction in contact with the air, or by the pancreatic ferment, it undergoes a change which is shown by the appearance of an absorption band in the red part of the spectrum. The substance which gives this band was named by Hoppe Seyler methæmoglobin, but he was unable at the time to decide whether this was a separate body, or whether it was a mixture of albumin and

hæmatin. Since then it has been supposed by various chemists that methæmoglobin was oxyhæmoglobin in a higher state of oxidation—in fact, a per-oxyhæmoglobin. No further proof, however, of this was adduced than its formation by oxidising agents. The fact that this substance is formed when arsenuretted hydrogen or sulphuretted hydrogen is passed through oxyhæmoglobin makes the oxidation theory very improbable, and recent observation has completely disproved this view. If a piece of palladium foil impregnated with hydrogen be brought into contact with a solution of oxyhæmoglobin, the colouring matter becomes converted into methæmoglobin. Here the hydrogen takes some of the oxygen to form water; hence, methæmoglobin must contain not more but less oxygen than oxyhæmoglobin. When a solution of methæmoglobin is submitted to putrefaction in a sealed tube, the band in the red soon disappears, and the spectroscope shows hæmoglobin only. If with suitable precautions the tube be broken and the access of oxygen allowed, oxyhæmoglobin is again obtained and may be crystallised. It is not yet quite disproved, although very improbable, that from hæmatin and an albumin hæmoglobin can be reconstituted, but the relatively rapid transformation of methæmoglobin into hæmoglobin by reduction, distinguishes at once this body from hæmatin, which may be recognised by addition of ammonium sulphide to its solution, since in presence of an albumin hæmatin yields hæmochromogen, and methæmoglobin yields hæmoglobin. As the result of his former and more recent observations, Hoppe Seyler concludes that methæmoglobin is a compound which, even in the absence of oxygen, is split up by acids or alkalies into hæmatin and an albumin, and in which the iron exists in the condition of oxide; whilst in hæmochromogen, hæmoglobin, and oxyhæmoglobin it exists in the condition of suboxide. If by any influence, oxyhæmoglobin is split up, hæmochromogen, O_2 and albumin result. The hæmochromogen, like hydrated suboxide of iron, indigo white, and many other substances, is able to decompose the oxygen molecule, and oxidising itself with one atom of the molecule, sets the other free. This, being in the active condition, changes the oxyhæmoglobin, which still exists, into methæmoglobin. By this view is explained that in the coagulation of oxyhæmoglobin solution by heat, with or without the previous addition of acid, methæmoglobin is formed, as well as hæmatin (it is from this methæmoglobin, and not from the hæmatin, that the reconstruction of the hæmoglobin spoken of above probably takes place); and further, that in the splitting of oxyhæmoglobin, fatty acids, as acetic and butyric acids, are formed.—*Zeitschrift f. physiologische Chemie*, I., 121, and II., 149.

J. M. P.

TREATMENT OF SANGUINEOUS CEREBRAL APOPLEXY BY HYPODERMIC
INJECTION OF ERGOTINE.

DR. N. S. FOSTER observes that the utility of the subcutaneous injection for the exhibition of the active principle of ergot, on account of the rapidity and comparative certainty of its action, has been most successfully demonstrated in cases of post partum hæmorrhage. From the explanation given of its inducing contraction of the smaller arteries, and from the facility of its administration, especially in cases where swallowing is at least very difficult, he was led to use it in cases of cerebral apoplexy and also of hæmoptysis. He records two cases, in each of which the patient was attacked with symptoms characteristic of an apoplectic lesion, the coma gradually deepening. On the injection of ergotine into the arm the comatose state became stationary and the grave symptoms rapidly passed off. (*Lancet*, Sept. 21, 1878.)—*Practitioner*, October, 1878.

J. W. M.

A CYSTINE CALCULUS.

M. GAUJOT describes a case of cystine calculus in the *Bulletin et Mémoires de la Société de Chirurgie*, Nov. 3, 1878. The patient was a man aged twenty-five, who was admitted into the Val-de-Grâce on May 30th, 1877. The first symptoms of stone appeared in 1876. The calculus was removed by the prerectal incision, and the patient recovered in five weeks. The stone weighed 25 grammes (387 grains); it was ovoid in shape, of yellow colour, and had a rugose surface. Its greatest diameter was 44 centimetres (about $1\frac{3}{4}$ inches). On section, it presented a homogeneous structure, without nucleus or strata; it was greasy to touch, and friable. Analysis showed it to be composed of cystine, with traces of phosphate and sulphate of lime, mucus, and fatty matter.—*London Medical Record*, Nov. 15, 1878.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

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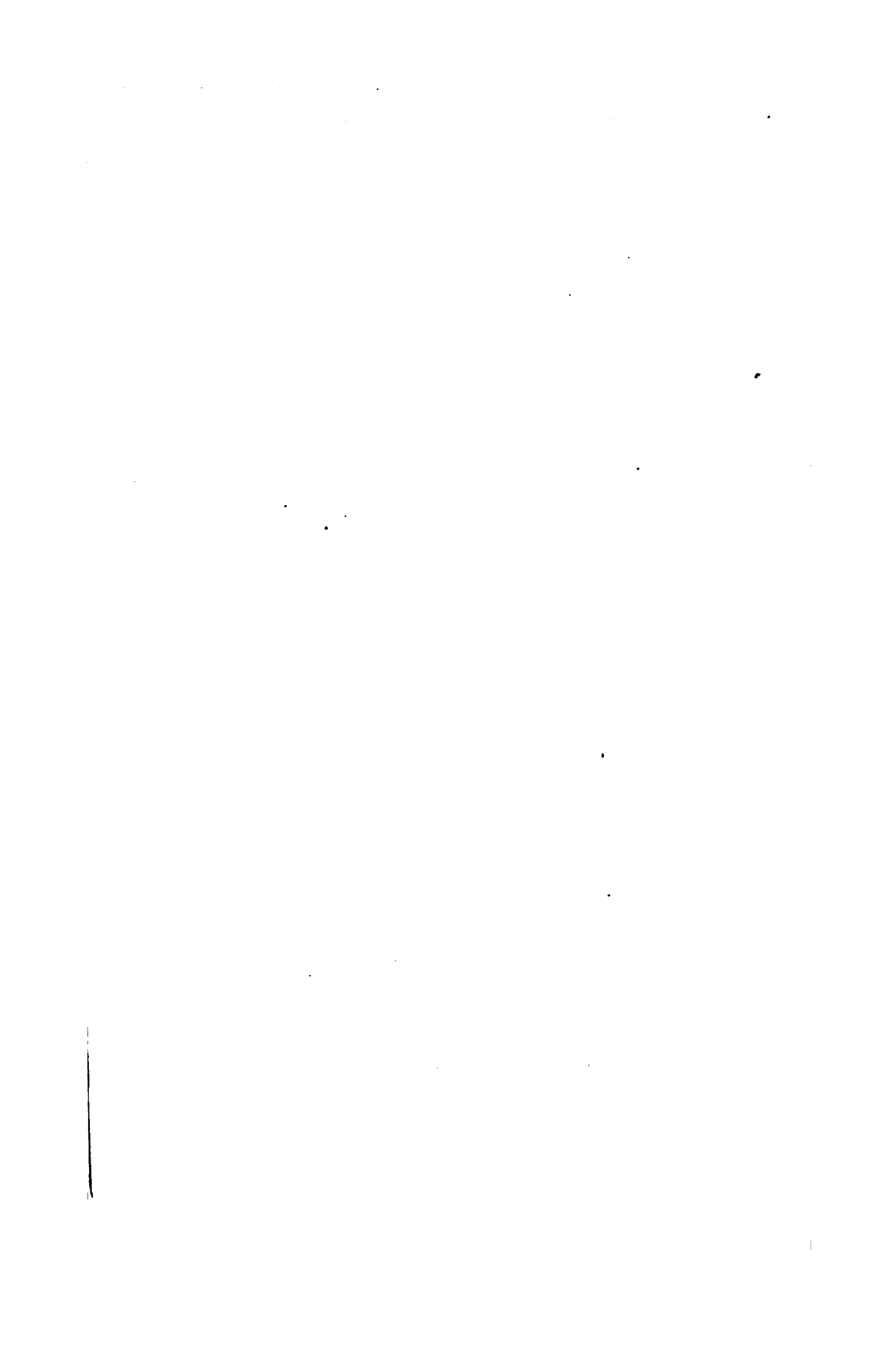
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ERRATUM.—In the Index to Vol. LXV., page 564, for "Macan, Dr. A. V., case of transfusion, 250," read "Purefoy, Dr. R. D., case of transfusion, 250;" and on page 565, a. v. "transfusion," instead of "Dr Macan," read "Dr. Purefoy."







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